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## Relationship between tourist accommodation establishments and natural environment in Eastern Region of Poland

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### ABSTRACT

Natural landscape features are considered to be one of the most significant factors determining spatial distribution of tourist traffic in case of long-term holidays. This type of vacations seems to be crucial for economic impact of the tourism, as tourism multiplier points out accommodation as services with largest further turnover. Perception of the natural environment may be very subjective, however some of its elements can be easily measured and compared, thus may be treated as a specific determinant having influence on tourism. Therefore the paper is an attempt to find a statistical relationship, measured by correlation, between the size of forests, protected areas and surface of inland waters, as well as their share in the overall area of administrative units, and the number of beds in tourist accommodation establishments and their occupancy rate in years 2012 and 2014. The research area was Eastern Region of Poland (by NUTS 1 classification), which covers Podlaskie, Lubelskie, Podkarpackie and Świętokrzyskie provinces. The advantage of such delimitation is an analysis of areas with inner landscape diversification, from lake sites and plains in the north, through uplands and low hills in the center, to mountains in the south. Moreover, this region is also famous for the presence of numerous and varied forms of nature conservation. In the paper statistical measures were used and the main source of data were databases of Central Statistical Office of Poland.

**Keywords:** tourism, natural environment, accommodation, occupancy rate, Eastern Poland, correlation

## **1. INTRODUCTION**

Modern economies of the most developed countries are in the post-industrial period, which characteristic element is the dominance of the services sector. From an economic point of view the component of this sector is tourism, which development significantly accelerates in times of globalization and continuous technical progress [1]. This process is influenced not only by social changes (e.g. increase of mobility, migrations [2]), but also faster and easier flow of information, as well as the availability of rapid and mass communication [3], resulting in mental shortening of geographical distances. Such situation is confirmed by data published in global reports - in 2015 international tourist arrivals amounted to almost 1.2 billion tourists, of which more than half were from Europe. Moreover, it was the sixth year in a row which saw a steady year-on-year growth of at least 4%, and the upward trend has continued unabated since 1995 (with the exception of two years), when the number of international tourist arrivals was just over half a billion<sup>1</sup>. Therefore it is not surprising that the total share of tourism in global gross domestic product in 2015 was almost 10% (with a clear upward trend over the past 5 years), and the prospects for the next 10 years assume a further steady increase in this area [4]. As a worldwide export category, tourism already ranks third (after fuels and chemicals), ahead of food or automotive products [4]. Tourism is an interdisciplinary phenomenon [5] and its economic effect does not depend solely on purely tourist services.

Research conducted by Harry G. Clement in the Pacific region allowed him to build a model of the spread of tourism expenditures, illustrating the emergence of total contribution of tourism, with its indirect and induced impact, caused by circulation of money on the market [6]. This so-called tourism multiplier proved that the biggest economical impact have expenditures on accommodation, where each dollar spend turns into almost 3,5 dollar turnover. Thus for each destination it seems crucial to keep tourists close for as long as possible. Incomes from tourist accommodation services are determined basically by two factors: prices and length of stay [7]. Therefore tourists will leave more money in places where they stay longer. If so, the question is what elements decide about the time of people's holiday and how big is their significance.

## **2. LONG-TERM HOLIDAYS AND NATURAL ENVIRONMENT**

According to Kaczmarek, Stasiak and Włodarczyk tourist values are those elements that in most cases determine the choice of places to spend weekends, holidays or vacations [9]. However, they do not create homogeneous group and can be divided according to different criteria. The most popular is that of their origin, differentiating values into natural and anthropogenic. However, it is worthy of note that attractiveness of place in terms of long-term holidays mainly relies on natural landscape types [9], what in case of Poland was already determined in 1960s and 1970s by accepting particular categories for its evaluation. Those were mainly level of terrain diversification, size of forests and surface of inland waters [10]. Therefore, there is no doubt that broadly understood natural environment is something strongly demanded by tourists and emphasized by accommodation providers, what *inter alia* was proved by Balińska in research conducted in Eastern Poland [11]. Also Sikorska-Wolak

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<sup>1</sup> UNWTO Annual Report 2015, Madrid (2016).

claims that diversified, natural countryside, large areas of forests and reservoirs are conducive to the development of tourism in Polish rural areas, such as Eastern Poland [12]. She also emphasizes the role of large-space protected areas, like national and landscape parks or nature reserves. While legal form of protection is something that can stress the quality of natural environment - Lijewski, Mikułowski and Wyrzykowski claim that large-space protected areas are usually terrains with the highest natural values and outstanding landscape features, what significantly affects the tourist perception of their attractiveness [10] - it is important to remember that protected areas in case of long-terms holidays are rather treated only as an addition improving attractiveness of landscape categories mentioned above (forest, water etc.) and should not be treated as a basis for tourist movement due to their wider multifaceted mission [13]. Anyway, all of described elements may be taken into account when considering factors crucial for the long-term holidays. Unfortunately, not all of them can be measured in objective and comparable way - when forests, waters or protected areas can be defined easily by their size, level of terrain diversification is something hard to determine in measurable scale (of course, for example, altitude may be used, but it doesn't give information about local diversity of relative heights).

The purpose of the article is therefore an attempt to determine the relationship between the size of forests, protected areas and surface of inland waters, as well as their share in the overall area of administrative units, and the number of beds in tourist accommodation establishments, as well as their occupancy rate. Finding such dependency will allow to check how strong quantity and use of accommodation services depends on different elements of natural environment.

### **3. MATERIALS AND METHODS**

For the purposes of this paper literature search on tourism impact on economy and role of natural environment in tourism in Poland and the world, as well as a survey based on existing data was conducted. The study was carried out for region of Eastern Poland according to the NUTS classification (NUTS 1), which includes Lubelskie, Podkarpackie, Świętokrzyskie and Podlaskie provinces. Such choice was primarily made due to the inner landscape diversification of the research area (from lake sites and plains in the north, through uplands and low hills in the center, to mountains in the south). Moreover, this region is also famous for the presence of numerous and varied forms of nature conservation. All of that provides some representativeness of carried out analysis.

The unit of analysis was a county and 65 of them were considered in the research (due to the incompleteness of the necessary data the Kazimierski, Kolbuszowski and Kraśnicki counties had to be excluded; also all cities with county rights, as urbanized units, were not included). In the paper the statistical data from the Local Data Bank of the Central Statistical Office was used.

To analyze the phenomenon Pearson's correlation coefficient was used. As the maximum significance level, for which the results of the calculations were considered as statistically significant,  $p$  equal to 0,05 was assumed. The module of calculated coefficient demonstrates the power of interdependence. Based on the literature, the following intervals were adopted [14]: 0,0-0,2: very poor interdependence, 0,2-0,4: poor interdependence,

0,4-0,6: moderate interdependence, 0,6-0,8: strong interdependence, 0,8-1,0: very strong interdependence.

There is no doubt that in this case the variables related to tourism are dependent and those associated with natural environment independent, so it allows to draw some directional conclusions. The first stage of the analysis was identification of Pearson's correlation between the accommodation base in microregions (counties), expressed by 3 variables: occupancy rate of accommodation establishments, number of bed places in tourist accommodation establishments in total and year-round, and independent variables including the following categories: size of forests, surface of flowing waters, surface of reservoirs and total size of protected areas.

Moreover data about natural environment was considered at two levels: absolute (surface in hectares) and relative (areas mentioned above as a share in total county areas). The calculations were made for 2 years: 2012 and 2014. These were 2 extreme years for which data could be obtained, but it is important to be aware that in such short period of time major change in the tourism sector and the size of the measured areas could not be observed. That should allow to verify the legitimacy of the formulated earlier and based on the literature assumption that the elements of natural environment influence size and occupancy rate of tourist accommodation in a significant, measurable way.

#### 4. RESULTS AND DISCUSSION

The obtained results of the correlation between the number of bed places, as well as their occupancy rate, and particular elements of natural environment are presented in Table 1:

**Table 1.** Correlation between the number of bed places, as well as their occupancy rate, and particular elements of natural environment in 2012 and 2014

			Number of bed places in total	Number of bed places year-round	Occupancy rate
Forests	2012	A	0,29	0,16	0,00
		S	0,32	0,20	0,07
	2014	A	0,30	0,16	0,06
		S	0,33	0,22	0,09
Flowing waters	2012	A	0,36	0,25	0,10
		S	0,36	0,25	0,10
	2014	A	0,35	0,24	0,12
		S	0,24	0,22	0,13

Reservoirs	2012	A	0,10	-0,14	0,03
		S	0,06	-0,12	0,09
	2014	A	0,09	-0,12	-0,02
		S	0,05	-0,11	0,04
Protected areas overall	2012	A	0,43	0,33	0,07
		S	0,41	0,35	0,09
	2014	A	0,46	0,34	0,11
		S	0,43	0,36	0,11

A: size of the area; S: share in total area; red color: results statistically insignificant for the assumed level of  $p$ .  
Source: own research.

The obtained results were statistically insignificant for the whole occupancy rate variable. Therefore it can be concluded that for the analyzed area considered natural factors are not relevant in shaping the level of occupancy rate. Thus assumption that the elements of the natural environment are crucial for long-term holidays was not confirmed. This may be due to the inclusion of all accommodation establishments types, and therefore also facilities that primarily serve tourists other than long-term (e.g. motels, training centers, excursion hotels, shelters). Another factor that can explain the results is the high seasonality of tourism based on the analyzed elements - the vast majority of long-term stays based on these values take place in summer, what is due to the much bigger attractiveness of forest and inland waters during this period, which are the areas of many forms of recreational activity, what is observed also in other European countries [15].

Meanwhile winter season predestines the areas of a completely different character [16] and features omitted in this study. Confirmation of this assumption may be in differences obtained at the level of correlation for number of bed places in total and year-round. In all cases the results were significantly higher for those first ones, while for forests the majority of dependencies in the latter case moreover turned out to be statistically insignificant. It is therefore possible to see the impact of the already mentioned seasonal attractiveness of analyzed natural elements. The statistically significant correlations were positive, but with poor or maximally moderate interdependence - the best results were achieved for protected areas, indicating that such emphasis of the value of the natural environment influences the perception of tourists and accommodation providers, trying to meet the demand. An interesting case is the difference in results obtained for flowing waters and reservoirs. The results for the latter have turned out to be statistically insignificant, while they seem to be rather more predestined to the idea of long-term holidays. Perhaps this is due to the rather large dispersion and uneven occurrence of lakes in the analyzed area. On the other side Eastern Poland is popular from many rivers, like Bug, Biebrza or famous Rospuda, not only among kayakers, but also fishermen. This could also explain the greater significance of the total surface of rivers than their share in the area of the counties - people undertaking activities connected with flowing waters are mainly interested in the size of the watercourses

and the possibilities offered by them, rather than their percentage share. What is interesting, the different results were obtained in the case of forests - here they are a little more important because of their share in the total area of the county. Perhaps the bigger that share is, the more spectacular is the impression of close contact with nature and feeling of being distant from the burdensome civilization, of what accommodation providers are aware and are trying to use such advantage in their offer. Finally, it is important to note that significant correlation results for 2014 are generally higher (except for flowing waters) than for 2012. This may prove that modern civilization transformations and their pace make natural environment increasingly valuable [17] - both from the point of view of accommodation providers, as well as of tourists. Increasing urbanization makes people more eager to break away from stressful urban conditions and seek close contact with nature. This suggests that in the years to come, the relationship between the elements of the natural environment and tourism accommodation, as well as its occupancy rate, should be more pronounced.

## **5. CONCLUSIONS**

The conducted study confirmed that there is a statistically significant positive correlation between the number of bed places in total and year-round and the size of some elements of natural environment in the analyzed region. However, this interdependence is poor or at most moderate, although seems to be growing in time. In case of occupancy rate no statistically significant relationship has been observed for all of the variables. Therefore, due to the visible landscape diversity of research sample, it can be concluded that the natural aspect plays some role only in the spatial development of accommodation (number of beds), but not in its occupancy rate. Moreover, this role is more crucial during holidays, what proves seasonal significance of widely understood nature in tourism in Eastern Poland - and if so, the nature cannot be treated as a critical element for long-term holidays in this area in all-year and whole tourist traffic perspective. From different categories of natural environment the greatest importance has absolute sizes of protected areas, while reservoirs seems to be uncorrelated with other variables. Further conclusions, however, require in-depth analyzes, including only part of the accommodation establishments, their seasonal occupancy rate, as well as other factors (like cultural ones) that may affect spatial distribution of tourism in Eastern Poland. Moreover analyzes only on some modern forms of tourism, like ecotourism, agritourism, nature or wildlife tourism are suggested, as they can bring completely different results. Those forms are basing mainly on natural environment and its protection [18], and, due to the increasing social awareness of significance of sustainable development [19], are growing in popularity lately, thus they may be a tourist future of this part of Poland.

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