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THE TOURISM FUNCTION DETERMINANTS OF THE RURAL MUNICIPALITIES IN PODKARPACKIE PROVINCE, POLAND

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Abstract. The tourism potential is defined as the elements like the natural environment (natural) and cultural (anthropogenic) amenities, which form the basis for tourism development. Properly managed and exposed become prominent, often unique tourist values, that are already real tourist attractions encouraging visitors to arrive at that area. Tourism potential is perceived as a major aspect in the formation of a region's tourism function. This article aims at identifying the tourism potential element, of seven, which is the most essential for the shaping of the said function. The research for this paper was conducted in 2006–2007, covering all the rural and combined urban-rural municipalities in Podkarpackie province, Poland.

Key words: tourism potential, tourism attractiveness, socio-economic conditions, tourism function, Podkarpackie province

PROFILE OF PODKARPACKIE PROVINCE

Podkarpackie province is one of the sixteen provinces (*voivodships*) of Poland. It is situated in the south-eastern part of the country and borders with Slovakia in the south and Ukraine in the east. After Poland's accession to the European Union, the eastern border of this region became the longest section of the EU's external land border.

Podkarpackie province consists of 4 city counties and 21 land counties (collectively known as *powiats*), which are further subdivided into 159 communes (*gminas*): 16 municipal, 29 municipal–rural[1] and 114 rural ones (Figure 1).

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[1] A municipal–rural commune is centred around a small town.

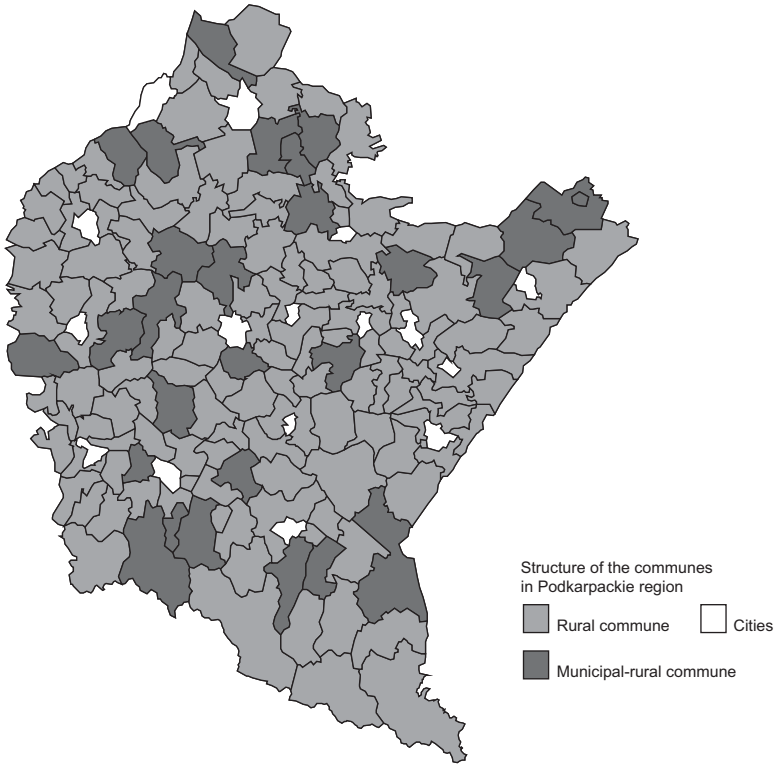


Fig. 1. Administrative division of Podkarpackie province
Rys. 1. Podział administracyjny województwa podkarpackiego

Source: Own compilation.
Źródło: Opracowanie własne.

RESEARCH METHODOLOGY

The measurement of synthetic indicators with the use of weighting has been applied in order to analyze and compare the tourist potential of Podkarpackie province municipalities. Two basic spheres of the tourism potential of areas concerned were assumed and identified, including: (1) tourism attractiveness – incl. natural values and qualities, anthropogenic values/qualities, and availability; and, (2) socio-economic conditions or determinants as being directly interrelated with tourism potential. The latter sphere encompasses factors such as services-related infrastructure, technical/technological infrastructure, demographic structure of the municipalities concerned, and the municipalities' finances. The analysis of tourism potential was carried out based on a total of forty (40) variables. Each of variables was assigned only to one of the above-defined groups. Each variable, group and sphere were attached respective weighting to reflect their influence with respect to tourism potential (Table 1). The system of matching the weightings with diagnostic variables is based on off-statistics information, and has been delivered based upon experts' opinions. It was assumed that all the variables ought to act as stimulants

Table 1. Factors influencing tourism potential
Tabela 1. Zmienne wpływające na wielkość potencjału turystycznego

Section I. Tourism amenities			
Natural amenities (z_1)		**Man-made amenities (z_2)**	
x1	Forest cover indicator	x8	Relics of the past, historical buildings
x2	Meadow and pasture indicator	x9	Museums and other permanent expositions
x3	Protected landscape area indicator		
x4	Bodies of waters suitable for water sports	x10	Trails (for hiking, cycling and horse riding) in kilometres per 1 km^2
x5	Landscapes suitable for cross-country skiing		
x6	Landscapes suitable for downhill skiing		
x7	Occurrence of spa waters		
Transport availability (z_3)			
x11	Roads in kilometres per 1 km^2		
x12	Number of trains stopping per year		
x13	Number of passenger transport companies per 1000 inhabitants		
x14	Number of car parks per 1 km^2		
x15	Average travel time from the capital of the province to the commune		
Section II. Socio-economics factors			
Service infrastructure (z_4)		**Technical infrastructure (z_5)**	
x16	Number of landline telephones per 1000 inhabitants	x24	Length of water mains in km per 1000 inhabitants
x17	Number of groceries per 1000 inhabitants	x25	Length water mains in km per 1 km^2
x18	Number of petrol stations and car repair shops per 1 km^2	x26	Length of sewer pipelines in km per 1000 inhabitants
x19	Number of banks per 1000 inhabitants	x27	Length of sewer pipelines in km per 1 km^2
x20	Number of post offices per 1000 inhabitants	x28	Length of natural gas pipelines in km per 1000 inhabitants
x21	Number of pharmacies per 1000 inhabitants	x29	Amount of untreated waste water (dm^3 per 1 km^2)
x22	Number of clinics and hospitals per 1 km^2	x30	Amount of accumulated waste (tons per 1 km^2)
x23	Distance form commune to main city in the county	x31	Percentage of population using the sewage treatment plant
		x32	Percentage of managed waste
Demographic structure (z_6)		**Finances of communes (z_7)**	
x33	Population age profile	x38	Total revenues of self-government entities
x34	Percentage of population working in agriculture	x39	Share of investments in total expenses of a commune (%)
x35	Percentage of population working in services	x40	Percentage of grants and subsidies in total revenues
x36	Unemployment indicator		
x37	Population density factor		

Source: Own research.
Źródło: Badania własne.

Standardization of features came out as the subsequent stage; along with an opportunity to mutually compare the municipalities for the rate of a certain indicator, the indicators could also be compared one against the other. A synthetic measure for the groups and then for the spheres, being the next step in the tourism potential index analysis, was set once all the aforementioned calculations were completed.

Tourism function rates (amounts) have been reckoned for individual municipalities using the Baretje and Defert indicator [Lijewski at al. 2002]. The latter is based on the number of tourist accommodation places (beds) and the number of permanent residents; the index is formulated as follows:

$$y_{.} = \frac{100N}{L_0 + kN}$$

where: N – number of tourist accommodation places (beds)
L_0 – local population not involved in tourism
k – index of inhabitants employed with tourism services, conditional upon the number of tourism-related accommodation places/beds and hotel categories

The regression analysis carried out has allowed for making up a model describing the relations between the tourist function volume (a dependent variable) and elements of tourism potential (independent variables): natural values/qualities (z_1), anthropogenic values/qualities (z_2), availability (z_3), services-related infrastructure (z_4), technical/technological infrastructure (z_5), demographic structure (z_6), and the municipalities' finance (z_7). A regression with more than one explanatory variable is a multiple regression (Brandt: 1998). In such a case, the theoretical model of regression assumes the following form:

$$y = a + b_1*z_1 + b_2*z_2 + ... + b_p*z_p$$

RESEARCH OUTCOME

Tourist attractiveness index

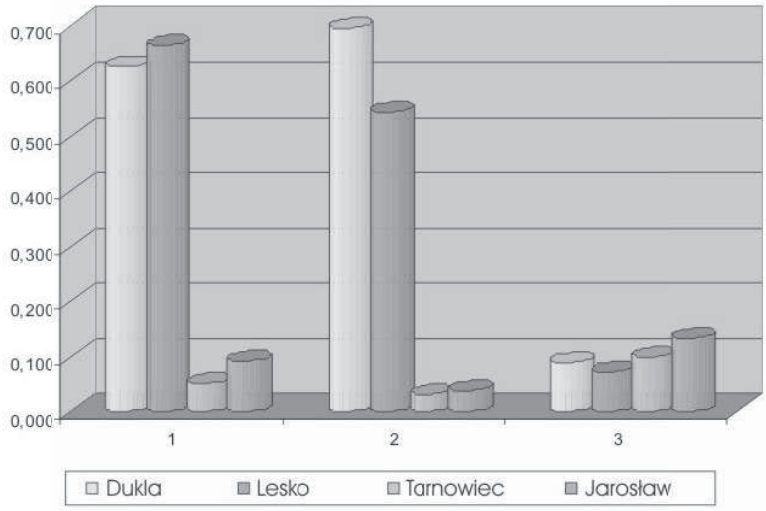
Setting together the tourist attractiveness aspects, i.e. natural and anthropogenic values and accessibility, it is determinable which of the municipalities are characterised by the highest attractiveness, along with their location (Table 2). The average index rate is $\overline{AT} = 0.21$ and 46% (i.e. 66) of the municipalities were found to perform equal to, or higher than, the average in this respect. The highest-rated municipalities included those of Dukla (0.54) and Lesko (0.51). Among the weakest-performing municipalities, with a ratio of $AT \leq 0.1$ maximum, eight were classed, incl.: Tarnowiec ($AT = 0.06$), Jarosław ($AT = 0.08$), Żyraków, Czermin, Przeworsk, Wadowice-Górne, Gorzyce and Borowa ($AT = 0.09$ each). The municipalities ranked at the two extremes differ markedly in their natural and anthropogenic value indicators, yet the difference for accessibility is only slight (Figure 2). It was thus found that a key role for determining the index in question is played by the first two mentioned elements.

Table 2. Municipalities rated by tourist attractiveness (synthetic indicator)
Tabela 2. Ranking gmin wg wskaźnika atrakcyjności turystycznej

	Municipalities	
1	**Dukla**	**0.54**
2	**Lesko**	**0.51**
3	**Lutowiska**	**0.47**
4	**Solina**	**0.46**
5	**Cisna**	**0.45**
6	**Komańcza**	**0.45**
7	**Horyniec-Zdrój**	**0.44**
8	**Baligród**	**0.43**
9	**Rymanów**	**0.41**
10	**Olszanica**	**0.41**
11	**Ustrzyki Dolne**	**0.41**
12	**Czarna***	**0.40**
13	Miejsce Piastowe	0.39
14	Iwonicz-Zdrój	0.37
15	Narol	0.37
16	Krempna	0.35
17	Bukowsko	0.31
18	Fredropol	0.31
19	Krasiczyn	0.30
20	Bircza	0.30
21	Wojaszówka	0.30
22	Tyrawa Wołoska	0.30
23	Dynów	0.30
24	Sanok	0.29
25	Cieszanów	0.29
26	Nowy Żmigród	0.28
27	Dębica	0.28
28	Osiek Jasielski	0.28
29	Dębowiec	0.28
30	Dydnia	0.28
31	Dubiecko	0.27
32	Strzyżów	0.27
33	Krzywcza	0.27
34	Pilzno	0.26
35	Kuryłówka	0.26
36	Zagórz	0.26
37	Zaklików	0.26
38	Zarszyn	0.26
39	Sieniawa	0.26
40	Besko	0.26
41	Żurawica	0.25
42	Adamówka	0.25
43	Pruchnik	0.25
44	Wielopole Skrzyńskie	0.25
45	Czudec	0.24
46	Błażowa	0.24
47	Hyżne	0.24
48	Niwiska	0.24
49	Iwierzyce	0.24
50	Tyczyn	0.24
51	Przemyśl	0.23
52	Chorkówka	0.23
53	Ropczyce	0.23
54	Korczyna	0.23
55	Głogów Małopolski	0.23
56	Łańcut	0.23
57	Wiązownica	0.23
58	Cmolas	0.23
59	Lubaczów	0.23
60	Sędziszów Małop.	0.23
61	Brzostek	0.22
62	Markowa	0.21
63	Rakszawa	0.21
64	Ostrów	0.21
65	Niebylec	0.21
66	Frysztak	0.21
67	Brzozów	0.20
68	Wiśniowa	0.20
69	Jawornik Polski	0.20
70	Rokietnica	0.20
71	Dzikowiec	0.20
72	Lubenia	0.19
73	Nozdrzec	0.19
74	Baranów Sandomierski	0.19
75	Jedlicze	0.19
76	Kolbuszowa	0.18
77	Jasienica Rosielna	0.18
78	Wielkie Oczy	0.18
79	Ulanów	0.18
80	Nisko	0.18
81	Przecław	0.18
82	Bojanów	0.18
83	Radymno	0.18
84	Oleszyce	0.17
85	Pysznica	0.17
86	Rudnik nad Sanem	0.17
87	Grodzisko Dolne	0.17
88	Czarna**	0.17
89	Kołaczyce	0.17
90	Stary Dzików	0.17
91	Boguchwała	0.16
92	Mielec	0.16
93	Harasiuki	0.16
94	Tuszów Narodowy	0.16
95	Roźwienica	0.16
96	Jodłowa	0.16
97	Leżajsk	0.16
98	Świlcza	0.15
99	Sokołów Małop.	0.15
100	Trzebownisko	0.15
101	Orły	0.15
102	Grębów	0.15
103	Chmielnik	0.15
104	Radomyśl n/Sanem	0.15
105	Kańczuga	0.14
106	Haczów	0.14
107	Raniżów	0.14
108	Domaradz	0.14
109	Nowa Sarzyna	0.14
110	Majdan Królewski	0.14
111	Żołynia	0.14
112	Skołyszyn	0.13
113	Gać	0.13
114	Medyka	0.13
115	Czarna***	0.13
116	Kamień	0.13
117	Nowa Dęba	0.13
118	Białobrzegi	0.13
119	Jasło	0.13
120	Radomyśl Wielki	0.12
121	Zarzecze	0.12
122	Zaleszany	0.12
123	Stubno	0.12
124	Brzyska	0.12
125	Krościenko Wyżne	0.12
126	Jarocin	0.12
127	Laszki	0.12
128	Tryńcza	0.12
129	Jeżowe	0.11
130	Pawłosiów	0.11
131	Krasne	0.10
132	Chłopice	0.10
133	Padew Narodowa	0.10
134	Krzeszów	0.10
135	Gawłuszowice	0.10
136	**Borowa**	**0.09**
137	**Wadowice Górne**	**0.09**
138	**Gorzyce**	**0.09**
139	**Przeworsk**	**0.09**
140	**Czermin**	**0.09**
141	**Żyraków**	**0.09**
142	**Jarosław**	**0.08**
143	**Tarnowiec**	**0.06**

* bieszczadzki province; ** łańcucki province; *** dębicki province

Source: Own research.
Źródło: Badania własne.



1) Natural values/qualities; 2) Anthropogenic values/qualities; 3) Accessibility.

Fig. 2. Distribution of tourist attractiveness indicators for the two top-rated and two lowest-rated municipalities

Rys. 2. Rozkład wielkości wskaźników atrakcyjności turystycznej dla dwóch gmin sklasyfikowanych najwyżej i dwóch sklasyfikowanych najniżej w rankingu

Source: Own research.
Źródło: Badania własne.

Socio-economic determinants ratio

Socio-economic determinants or conditions determine the quality of life and standard of living of the inhabitants of specified areas and the areas' investment-related attractiveness. They set the municipalities' competitiveness viewed against other territorial (local) units. The drivers selected and presented above directly shape and contribute to the municipality's tourism potential.

In Podkarpackie province municipalities under research, the average rate for the index in question is U_{sg} = 0.28. Again, southern municipalities were rated highest (Table 3), while a total of 61 units were found to be of a value equal to, or in excess of, the average (i.e. 43% of municipalities in the Podkarpacie area).

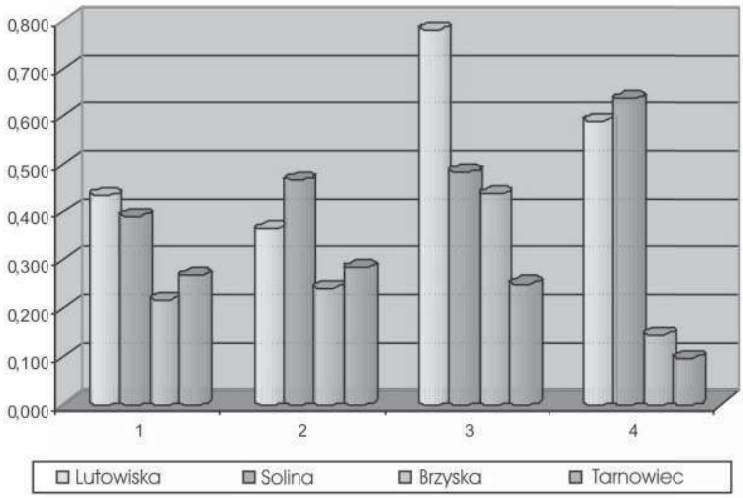
The clearest difference between the indicators for the best and worst performing municipalities is for the demographic structure and finance of the municipalities. The services-oriented and technical/technological infrastructure, better developed in the dominating municipalities, prevail over the weakest units by a mere 0.2 on average. This breakdown may suggest that the socio-economic conditions are mainly shaped by factors 3 and 4 (Figure 3).

Table 3. Municipalities rated by the socio-economic determinant indicator
Tabela 3. Ranking gmin wg wielkości wskaźnika uwarunkowań społeczno-gospodarczych

	Municipality	
1	**Lutowiska**	**0.49**
2	**Solina**	**0.47**
3	**Lesko**	**0.45**
4	**Cisna**	**0.43**
5	**Dukla**	**0.43**
6	**Baligród**	**0.40**
7	Horyniec-Zdrój	0.39
8	Miejsce Piastowe	0.38
9	Ustrzyki Dolne	0.38
10	Komańcza	0.37
11	Krempna	0.37
12	Rymanów	0.36
13	Czarna*	0.36
14	Iwonicz-Zdrój	0.35
15	Cieszanów	0.33
16	Olszanica	0.33
17	Narol	0.33
18	Krasiczyn	0.32
19	Ropczyce	0.32
20	Besko	0.32
21	Fredropol	0.32
22	Żurawica	0.31
23	Strzyżów	0.31
24	Ostrów	0.31
25	Rokietnica	0.31
26	Sieniawa	0.31
27	Łańcut	0.30
28	Kuryłówka	0.30
29	Wojaszówka	0.30
30	Bukowsko	0.30
31	Tyczyn	0.30
32	Niwiska	0.30
33	Głogów Małop.	0.30
34	Zaklików	0.30
35	Dębowiec	0.30
36	Tyrawa Wołoska	0.30
37	Chorkówka	0.29
38	Cmolas	0.29
39	Stary Dzików	0.29
40	Dydnia	0.29
41	Dębica	0.29
42	Sanok	0.29
43	Czudec	0.29
44	Harasiuki	0.29
45	Adamówka	0.29
46	Oleszyce	0.29
47	Zarszyn	0.29
48	Hyżne	0.29
49	Wiązownica	0.29
50	Bircza	0.29
51	Lubaczów	0.29
52	Krzywcza	0.29
53	Dubiecko	0.28
54	Nowy Żmigród	0.28
55	Trzebownisko	0.28
56	Kolbuszowa	0.28
57	Sędziszów Małop.	0.28
58	Markowa	0.28
59	Błażowa	0.28
60	Iwierzyce	0.28
61	Pruchnik	0.28
62	Frysztak	0.27
63	Nisko	0.27
64	Dynów	0.27
65	Medyka	0.27
66	Dzikowiec	0.27
67	Ulanów	0.27
68	Wiśniowa	0.27
69	Zagórz	0.27
70	Osiek Jasielski	0.27
71	Boguchwała	0.27
72	Niebylec	0.27
73	Brzostek	0.27
74	Gać	0.26
75	Pilzno	0.26
76	Rakszawa	0.26
77	Kańczuga	0.26
78	Bojanów	0.26
79	Roźwienica	0.26
80	Jawornik Polski	0.26
81	Pawłosiów	0.26
82	Przecław	0.26
83	Majdan Król.	0.26
84	Krasne	0.26
85	Wielkie Oczy	0.26
86	Korczyna	0.26
87	Żołynia	0.26
88	Jarocin	0.26
89	Chmielnik	0.26
90	Orły	0.26
91	Kołaczyce	0.25
92	Wielopole Skrzyńskie	0.25
93	Grodzisko Dolne	0.25
94	Brzozów	0.25
95	Rudnik n/Sanem	0.25
96	Nozdrzec	0.25
97	Jasienica Rosielna	0.25
98	Czarna**	0.25
99	Przemyśl	0.25
100	Jeżowe	0.25
101	Świlcza	0.25
102	Haczów	0.25
103	Lubenia	0.25
104	Jedlicze	0.25
105	Grębów	0.25
106	Nowa Sarzyna	0.25
107	Domaradz	0.24
108	Zarzecze	0.24
109	Chłopice	0.24
110	Baranów Sandomierski	0.24
111	Pysznica	0.24
112	Sokołów Małop	0.24
113	Krościenko Wyżne	0.24
114	Czarna***	0.24
115	Tryńcza	0.24
116	Białobrzegi	0.24
117	Padew Narodowa	0.24
118	Radymno	0.24
119	Gorzyce	0.24
120	Leżajsk	0.24
121	Stubno	0.24
122	Raniżów	0.24
123	Kamień	0.24
124	Tuszów Narodowy	0.23
125	Laszki	0.23
126	Radomyśl Wielki	0.23
127	Jodłowa	0.23
128	Jarosław	0.23
129	Radomyśl n/Sanem	0.23
130	Mielec	0.23
131	Zaleszany	0.22
132	Krzeszów	0.22
133	Gawłuszowice	0.22
134	Żyraków	0.22
135	Skołyszyn	0.22
136	Nowa Dęba	0.22
137	Wadowice Górne	0.21
138	Czermin	0.20
139	Przeworsk	0.20
140	Borowa	0.20
141	**Jasło**	**0.19**
142	**Brzyska**	**0.19**
143	**Tarnowiec**	**0.15**

* bieszczadzki province; ** łańcucki province; *** dębicki province

Source: Own research.
Źródło: Badania własne.



1) Services infrastructure; 2) Technical/technological infrastructure; 3) Demographic structure; 4) Municipality finance.

Fig. 3. Distribution of socio-economic determinant indicators for the two top-rated and two lowest-rated municipalities

Rys. 3. Rozkład wielkości wskaźników uwarunkowań społeczno-gospodarczych dla dwóch gmin sklasyfikowanych najwyżej i dwóch sklasyfikowanych najniżej w rankingu

Source: Own research.
Źródło: Badania własne.

Tourism potential index

The indicators shown above form the basis for calculating a complete tourism-related potential for each of the investigated municipalities. The mean value of the potential in question equals $\overline{P} = 0.329$, all the administrative units being contained within the brackets of $P \in (0.14–0.50)$. A higher-than-average ratio was only achieved by sixteen administrative units that may be deemed to be municipalities of particularly high tourism potential. These include (cf. Table 4): Lutowiska, Solina, Lesko, Cisna, Dukla, Baligród, Horyniec-Zdrój, Miejsce-Piastowe, Ustrzycki-Dolne, Komańcza, Krempna, Rymanów, Czarna (County of Bieszczady), Iwonicz-Zdrój, Olszanica, and Cieszanów. All these municipalities are situated in the south of Podkarpackie Province (Figure 4).

Those municipalities which were rated last, with their synthetic indicator at $P \leq 0.2$, include: Tarnowiec, Brzyska, Jasło (surrounding the town of Jasło), Przeworsk (directly neighbouring the town of Przeworsk), and Borowa – the only municipal unit not adjacent to an urban area.

The rating of municipalities in terms of the synthetic indicator of their tourism potential and the elements based whereupon this rate has been reckoned clearly indicate that the rural municipalities of Podkarpackie province are diversified.

Table 4. Municipalities rated by tourism potential index
Tabela 4. Ranking gmin wg wskaźnika potencjału turystycznego

	Municipality			Municipality			Municipality	
1	**Lutowiska**	**0.49**	49	Wiązownica	0.29	97	Jasienica Rosielna	0.25
2	**Solina**	**0.47**	50	Bircza	0.29	98	Czarna**	0.25
3	**Lesko**	**0.45**	51	Lubaczów	0.29	99	Przemyśl	0.25
4	**Cisna**	**0.43**	52	Krzywcza	0.29	100	Jeżowe	0.25
5	**Dukla**	**0.43**	53	Dubiecko	0.28	101	Świlcza	0.25
6	**Baligród**	**0.40**	54	Nowy Żmigród	0.28	102	Haczów	0.25
7	Horyniec-Zdrój	0.39	55	Trzebownisko	0.28	103	Lubenia	0.25
8	Miejsce Piastowe	0.38	56	Kolbuszowa	0.28	104	Jedlicze	0.25
9	Ustrzyki Dolne	0.38	57	Sędziszów Małop.	0.28	105	Grębów	0.25
10	Komańcza	0.37	58	Markowa	0.28	106	Nowa Sarzyna	0.25
11	Krempna	0.37	59	Błażowa	0.28	107	Domaradz	0.24
12	Rymanów	0.36	60	Iwierzyce	0.28	108	Zarzecze	0.24
13	Czarna*	0.36	61	Pruchnik	0.28	109	Chłopice	0.24
14	Iwonicz-Zdrój	0.35	62	Frysztak	0.27	110	Baranów Sandomierski	0.24
15	Cieszanów	0.33	63	Nisko	0.27	111	Pysznica	0.24
16	Olszanica	0.33	64	Dynów	0.27	112	Sokołów Małop	0.24
17	Narol	0.33	65	Medyka	0.27	113	Krościenko Wyżne	0.24
18	Krasiczyn	0.32	66	Dzikowiec	0.27	114	Czarna***	0.24
19	Ropczyce	0.32	67	Ulanów	0.27	115	Tryńcza	0.24
20	Besko	0.32	68	Wiśniowa	0.27	116	Białobrzegi	0.24
21	Fredropol	0.32	69	Zagórz	0.27	117	Padew Narodowa	0.24
22	Żurawica	0.31	70	Osiek Jasielski	0.27	118	Radymno	0.24
23	Strzyżów	0.31	71	Boguchwała	0.27	119	Gorzyce	0.24
24	Ostrów	0.31	72	Niebylec	0.27	120	Leżajsk	0.24
25	Rokietnica	0.31	73	Brzostek	0.27	121	Stubno	0.24
26	Sieniawa	0.31	74	Gać	0.26	122	Raniżów	0.24
27	Łańcut	0.30	75	Pilzno	0.26	123	Kamień	0.24
28	Kuryłówka	0.30	76	Rakszawa	0.26	124	Tuszów Narodowy	0.23
29	Wojaszówka	0.30	77	Kańczuga	0.26	125	Laszki	0.23
30	Bukowsko	0.30	78	Bojanów	0.26	126	Radomyśl Wielki	0.23
31	Tyczyn	0.30	79	Roźwienica	0.26	127	Jodłowa	0.23
32	Niwiska	0.30	80	Jawornik Polski	0.26	128	Jarosław	0.23
33	Głogów Małopolski	0.30	81	Pawłosiów	0.26	129	Radomyśl n/Sanem	0.23
34	Zaklików	0.30	82	Przecław	0.26	130	Mielec	0.23
35	Dębowiec	0.30	83	Majdan Królewski	0.26	131	Zaleszany	0.22
36	Tyrawa Wołoska	0.30	84	Krasne	0.26	132	Krzeszów	0.22
37	Chorkówka	0.29	85	Wielkie Oczy	0.26	133	Gawłuszowice	0.22
38	Cmolas	0.29	86	Korczyna	0.26	134	Żyraków	0.22
39	Stary Dzików	0.29	87	Żołynia	0.26	135	Skołyszyn	0.22
40	Dydnia	0.29	88	Jarocin	0.26	136	Nowa Dęba	0.22
41	Dębica	0.29	89	Chmielnik	0.26	137	Wadowice Górne	0.21
42	Sanok	0.29	90	Orły	0.26	138	Czermin	0.20
43	Czudec	0.29	91	Kołaczyce	0.25	139	Przeworsk	0.20
44	Harasiuki	0.29	92	Wielopole Skrzyńskie	0.25	140	Borowa	0.20
45	Adamówka	0.29	93	Grodzisko Dolne	0.25	**141**	**Jasło**	**0.19**
46	Oleszyce	0.29	94	Brzozów	0.25	**142**	**Brzyska**	**0.19**
47	Zarszyn	0.29	95	Rudnik n/Sanem	0.25	**143**	**Tarnowiec**	**0.15**
48	Hyżne	0.29	96	Nozdrzec	0.25			

* bieszczadzki province; ** łańcucki province; *** dębicki province

Source: Own research.
Źródło: Badania własne.

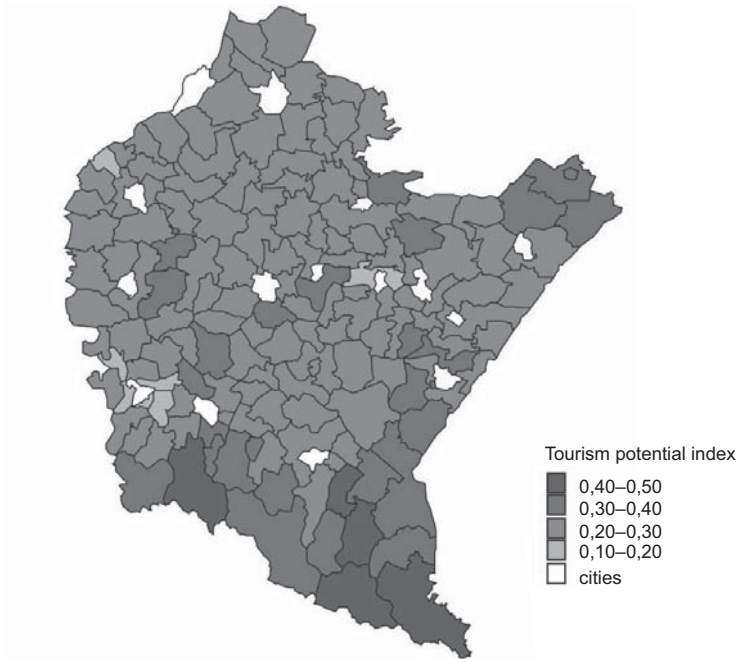


Fig. 4. Spatial distribution of municipalities by tourism potential index
Rys. 4. Rozmieszczenie przestrzenne gmin według wskaźnika potencjału turystycznego

Source: Own compilation.
Źródło: Opracowanie własne.

This non-homogeneity among the municipalities determines the developmental potential of these areas' various functions. The present rating may suggest which areas provide larger or smaller development opportunities for tourism as a domain of the local economy. It has to be borne in mind that tourism cannot develop in any single place, or that in certain circumstances it may not necessarily form the demanded developmental direction. Municipalities displaying a weak tourism potential cannot limit their development grounds to tourism only, apparently being a relatively non-expensive means – especially if they do not carry out research into the potential in question.

TOURISM FUNCTION – SIZE AND STRUCTURE

With statistical analysis of the above-specified elements completed, the following tourist function rates have been arrived at for individual municipalities in the Province. The tourist function rate assumed $y > 0$ for a total of 116 municipalities, i.e. 81% of administrative units. It was thus found that it was only in those municipalities that a tourism function actually appeared. The highest rate was disclosed for the Municipality of Krempna, situated on the south-western edge of the Province. It is a border

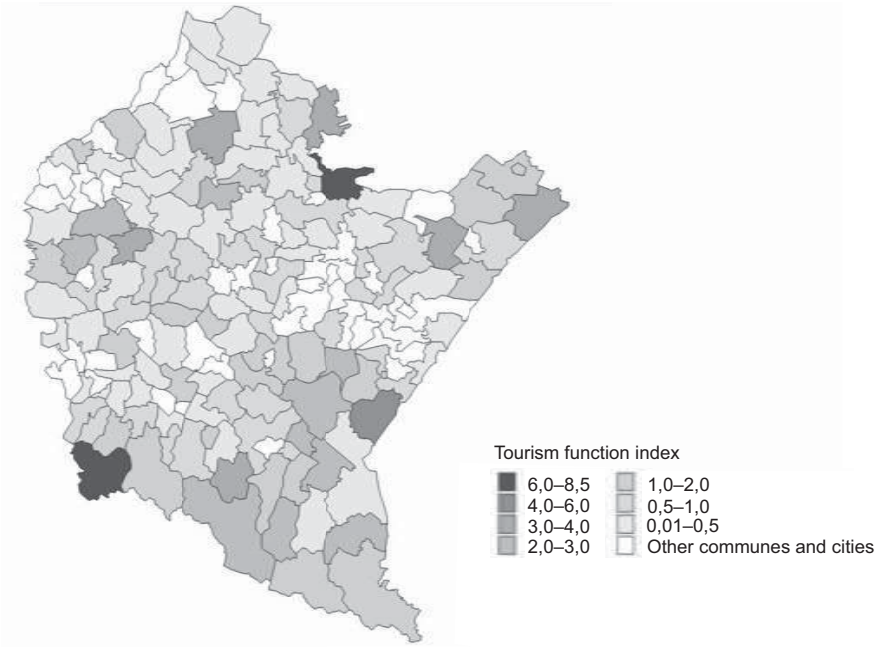


Fig. 5. Spatial distribution of municipalities by tourism function indicator
Rys. 5. Rozmieszczenie przestrzenne gmin wg wskaźnika funkcji turystycznej

Source: Own compilation.
Źródło: Opracowanie własne.

municipality that shares a frontier with Slovakia and with a Małopolskie Province municipality. Its tourism function was rated at y = 8.1728. Krempna is followed by the Municipality of Kuryłówka, with its tourist function indicator of y = 7.3870.

In a spatial localization (Figure 5), those municipalities where a tourism function appears are classifiable into three groups, i.e. municipalities situated in the southern, north-eastern and central part of the Province. The first two are located in areas proving attractive in terms of their natural values (i.e. Roztocze, Beskidy and Bieszczady, respectively) and tourism seems to be a natural development there, whereas the third identified group is a special case in point. Employment in the tourism industry and development of accommodation/overnight-stay facilities are no doubt associated with the use of a transportation route. It can be confirmed that the authorities of municipalities forming this cluster, as well as local inhabitants, could successfully perceive and take advantage of the benefit of their area's situation. This forms a primary determinant of the fact that a tourist function does not necessarily have to be conditional upon an area's location in respect of natural attractions. Only those units with which the tourist function assumed the value of y > 0, i.e. the 116 municipalities, incl. twenty-seven urban-and-rural municipalities and eighty-nine rural municipalities were subject to further analysis.

DETERMINANTS OF DEVELOPMENT OF THE TOURIST FUNCTION

Identification of the factors determining the development of the region's tourism function is based on a general linear model (GLM). The results of the analysis of multiple regression made in the *Statistica 8.0* module discerned one variable, i.e. z_1, informing the region's tourism function (y). Based on the actual natural values' parameters, the regression model representing the tourism function (y) can be shown with the use of the following formula:

$$y = 1.742*z_1 + 0.96$$

The above model is evidence that the volume or size of the tourist function for a given municipality is mostly dependent upon natural values. The other variables have not been made part of the GLM due to their high significance tests (Table 5).

Table 5. One-dimensional significance tests for the tourism function *y*, in a general regression model

Tabela 5. Jednowymiarowe testy istotności dla funkcji turystycznej *y* dla ogólnego modelu regresji

Effect	One-dimensional significance tests for *y* Parameterisation with sigma-restrictions Decomposition of effective hypotheses
	p
Absolute term	0.361031
Natural values (z_1)	0.040468
Anthropogenic values (z_2)	0.323550
Accessibility (z_3)	0.408873
Services infrastructure (z_4)	0.707235
Technical/technological infrastructure (z_5)	0.160934
Demographic structure (z_6)	0.376520
Communal finance (z_7)	0.119492

Source: Own research.
Źródło: Badanie własne.

To reconfirm the above-specified model, the author additionally employed a model of forward/backward regression, which ascertained natural values as the variable that most significantly influences the shaping of the tourism function in the region.

SUMMARY

The diversity of urban-rural and rural municipalities in Podkarpackie province with regards to both natural and anthropogenic values or qualities, accessibility, and all the aspects pertinent to socio-economic conditions/determinants, implies that various

economic functions may take shape in the areas under research – the tourism function being one of them. Based on the statistical analyses presented, it has been found that the main determinant of the latter function's development is the size (volume) and structure of natural values specific to individual municipalities. The remaining variables in question have not been made part of the linear model under discussion. Presumably, an additional non-linear analysis of the phenomenon being considered would be indispensable. Still, taking the present outcome into account, one comes to the conclusion that the areas (municipalities, counties, regions) characterised by considerable natural values face more remarkable opportunities to develop their economies on the basis of tourism.

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WPŁYW POTENCJAŁU TURYSTYCZNEGO NA KOSZTAŁTOWANIE FUNKCJI TURYSTYCZNEJ REGIONU NA PRZYKŁADZIE OBSZARÓW WIEJSKICH WOJEWÓDZTWA PODKARPACKIEGO

Streszczenie. Potencjał turystyczny to elementy środowiska przyrodniczego (naturalne) oraz kulturowego (antropogeniczne), które stanowią podstawę do rozwoju ruchu turystycznego. Odpowiednio zagospodarowane i wyeksponowane stają się walorami turystycznymi, często unikatowymi, które są już realnymi elementami przyciągania ruchu turystycznego na dany teren. Potencjał turystyczny postrzegany jest jako jeden z podstawowych elementów kształtowania się funkcji turystycznej regionu, a jego podział zależny jest od autorów opisujących i charakteryzujących to zjawisko. Różne są też metody jego pomiaru. Celem artykułu jest wykazanie, który spośród wybranych siedmiu elementów potencjału turystycznego jest najważniejszy w kształtowaniu się tej funkcji. Badania do niniejszej pracy wykonane zostały w latach 2006–2007 i objęły obszar wszystkich gmin wiejskich oraz miejsko-wiejskich województwa podkarpackiego.

Słowa kluczowe: potencjał turystyczny, atrakcyjność turystyczna, uwarunkowania społeczno-demograficzne, funkcja turystyczna, województwo podkarpackie

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