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HEALTH TOURISM COMPETITIVENESS – A COMPLEX APPROACH

GYÓGY- ÉS TERMÁLTURISZTIKAI VERSENYKÉPESSÉG – EGY KOMPLEX MEGKÖZELÍTÉS

András BOZÓTI [a]

[a] University of Pécs, Faculty of Busness and Economics, Regional Politics and Economics Doctoral School, Address: H-7622 Pécs, Rákóczi Str. 80, phone: +36-30-246-8281, e-mail: bozotia@ktk.pte.hu

Abstract

Health tourism plays an important role in regional development – mainly in settlement development plans. This paper offers a composite competitiveness index for settlements – an index elaborated on the basis of general competitiveness theories, but which also utilises relevant factors of tourism competitiveness. Our analysis is limited to settlements with medicinal and thermal baths from two Hungarian regions, West Transdanubia and South Transdanubia. The former is a central region from the perspective of tourist flows and the latter is a peripheral region - which entails more opportunities for analysis. After a short review of currently recognised theoretical models, a composite index was constructed. The study attempts to explain the methodology of index-construction and the figures analysed; we finally analyse the results at sub-index level. The focus of the article is to demonstrate relevant factors of tourism competitiveness and to show the first results – basically to prepare for further, deeper investigation. The study is published in accordance with OTKA-project No. 106283.

Keywords: medicinal and thermal tourism, tourism competitiveness, settlements with medicinal and thermal baths, cluster analysis, composite index

Kivonat

A gyógy- és termálturizmus jelentős szerepet játszik a regionális fejlődésben, különösképpen településfejlesztési tervekben. A tanulmány célja, hogy létrehozzon egy kompozit települési versenyképességi indexet, amely az általános települési versenyképesség megközelítéseiből indul ki, de nagyobb hangsúlyt fektet a turisztikai versenyképesség érvényesítésére. Az elemzés keretét két régió, Nyugat-Dunántúl és Dél-Dunántúl gyógy- és termálfürdővel rendelkező települései jelentik. Előbbi egy turista áramlás szempontjából centrális, utóbbi periférikus térség, ami további elemzési lehetőségeket rejt magában. Az elméleti modellek rövid áttekintését követően sor kerül a kompozit index megalkotására. A tanulmány részletesen kitér az indexképzés módszerére, a vizsgált mutatócsoportokra, s végül elemzi a kapott eredményeket alindexek szintjén. A cikk középpontjában a releváns tényezők és az első eredmények bemutatása áll, későbbi, mélyebb indikátorok szintjén végzett települési vizsgálatok előkészítése érdekében. A tanulmány a 106283. számú támogatott OTKA-projekt keretében jelenik meg.

Kulcsszavak: Gyógy- és termálturizmus, turisztikai versenyképesség, gyógy- és termálfürdővel rendelkező települések, klaszteranalízis, kompozit index

INTRODUCTION

Today, economic development plays an increasing role amid a constantly changing environment, and new opportunities are actively sought. For Hungary, amongst other activities, medicinal and thermal tourism has the required potential. Hungary is fortunate in having a large part of its surface area lying above easily accessible thermal water sources, and many of these have positive and recognised medicinal qualities. In consequence, numerous settlements have chosen this route as a future direction – that is, to develop health tourism locally – and this trend seems likely to continue. Thanks to the Széchenyi Plan, numerous settlements have been able to develop their baths and this has produced a slightly improved competitiveness position (Michalkó et al., 2009). However, following the establishment of a bath, continuous maintenance and development is required, and this may have further positive effects on the whole settlement, or even on the wider region, through regional spill-over effects.

The main aim of this study is to examine settlements which are operating medicinal and thermal baths, from the perspective of tourism competitiveness – by means of a ***composite competitiveness index*** and by using the results of an OTKA (Országos Tudományos Kutatási Alapprogramok, Hungarian Scientific Research Fund) project. The final aim of this project is to build a model specializing in the competitiveness of settlements involved in health tourism. The model constructed demonstrates which settlements have prospered as a result of their medicinal and thermal baths, although the most important aim of the research is to determine '***best practice***'. In this paper the most important, relevant factors will be shown – those which play a major role in sectoral competitiveness. In fact, medicinal and health tourism show a significant spatial concentration in Hungary (Ács and Laczkó, 2008), and we can study these in the sample of two Hungarian regions – one of which is central from the perspective of tourist flow (West Transdanubia, where we examine 24 settlements), whilst the other is peripheral (South Transdanubia, where we look at17). The tourism-based competitiveness of these settlements can be defined in terms of ***three groups of indicators*** based on Fei Lee and King (2005) – the resources of the destination, the macro-environment and the state or level of advancement of settlement. All of these factors were taken into account in constructing the index.

As mentioned earlier, the aim of this paper is to define tourism competitiveness for such settlements, to give a short summary of tourism competitiveness models and then to draw

conclusions based on our own index. The hierarchy of settlements will be demonstrated as a single entity and also separately by means of sub-indices.

Touristic competitiveness

In this paper the terminology of touristic and settlement competitiveness is both relevant and important; both concepts are complex and cannot easily be described.

The efficient operation of a settlement can also be determined from the perspective of *its touristic competitiveness*. A settlement is efficient if it is able to satisfy the interests of tourists, inhabitants, local economic profit-oriented or non-profit organizations and can provide the maximum possible level of wellbeing (Piskóti et al., 2002).

Considering touristic competitiveness from a macroeconomic standpoint, the *natural, cultural, human and infrastructural resources and financial assets* which apply to a settlement should be mentioned (Ilbery and Saxena, 2009, Jancsik, 2007, Bakucz et al., 2010). The different theories on touristic competitiveness cannot easily be categorised, since research until now has not been broad enough. Most studies were written on the basis of the diamond-model (Porter, 1990), which utilises a number of significant pillars: *the structure of entrepreneurship, supplementary factors, demand conditions, the importance of connecting industries, the presence of competitors* (Balan et al., 2007). Also, within tourism competitiveness research, resource-based theories play a highly important role. According to this theory, the competitiveness of any company (or, as in our case, of any settlement) is defined by external conditions (Barney, 2001), which are the touristic attractions themselves.

These touristic attractions are natural resources, but the great majority of resource-based theories identify with the rarity-value and substitutability of corporate competencies within the firm itself (Lőre, 2010). Research into tourism competitiveness can be grouped not only on the basis of different spatial levels, but otherwise also. To increase the competitiveness of a destination numerous authors mention sustainability in relation to the particular form of tourism (Ozturk and Eraydin, 2009; Williams and Ponsford; 2009, Michalkó and Rátz, 2011), while others (Wang and Krakover, 2008) assert that long-term competitiveness in a touristic destination is significantly influenced by the level of cooperation within the field and the balance of corporate competition. Further, the branding of a destination is a key factor in long-term competitiveness (Boo et al., 2009). Ejarque (2005) aimed in his study to clarify the basic definitions in a definite structure, and his article deals with specific items: geographical location, environmental and physical criteria, demography, tourism attraction, perceived

image (Szűcs, 2005, Royo-Vela, 2009) and touristic resources (natural, cultural activities, infrastructure and services).7

Tourism Destination Competitiveness Models

The competitiveness of touristic destinations is a very popular field and many authors have dealt with it in recent years. For this paper I have endeavoured to assemble the most appropriate theories – the models which are relevant – by constructing a settlement-based touristic competitiveness model. The specific attractions are ***very small in terms of space*** (in our case, settlements), but their spillover effect must be examined more closely since destinations have no fixed borders (Michalkó and Rátz, 2010). After reading and investigating other authors' models, we still cannot group theories, but we built models based on each other – so revealing many connections. ***Poon*** (1993) emphasises in his analysis the importance of environmental factors, that the private sector should be developed intensively and the fact that, in order to utilize local and regional spillover effects, ***tourism must play a central role*** in the territory. Poon dealt mainly with qualitative data and used questionnaires for his research. If we investigate more specifically the medicinal and thermal spa operating settlements of West and South Transdanubia, it is clear that tourism is not in itself a sufficient condition of settlement competitiveness (Bakucz et. al., 2013), nd so tourism cannot be the most important sector in the development of settlements and their regions.

From the end of the '90s – and mainly from the beginning of the 2000s – still more researchers dealt with the competitiveness of tourism at different levels (countries, regions, micro-regions, settlements). In chronological order, the first model is ***Crouch and Ritchie (1999) which is to date the most detailed touristic destination competitiveness model.*** The following chart demonstrates their theory (Fig. 1):

Figure 1 Tourism destination competitiveness
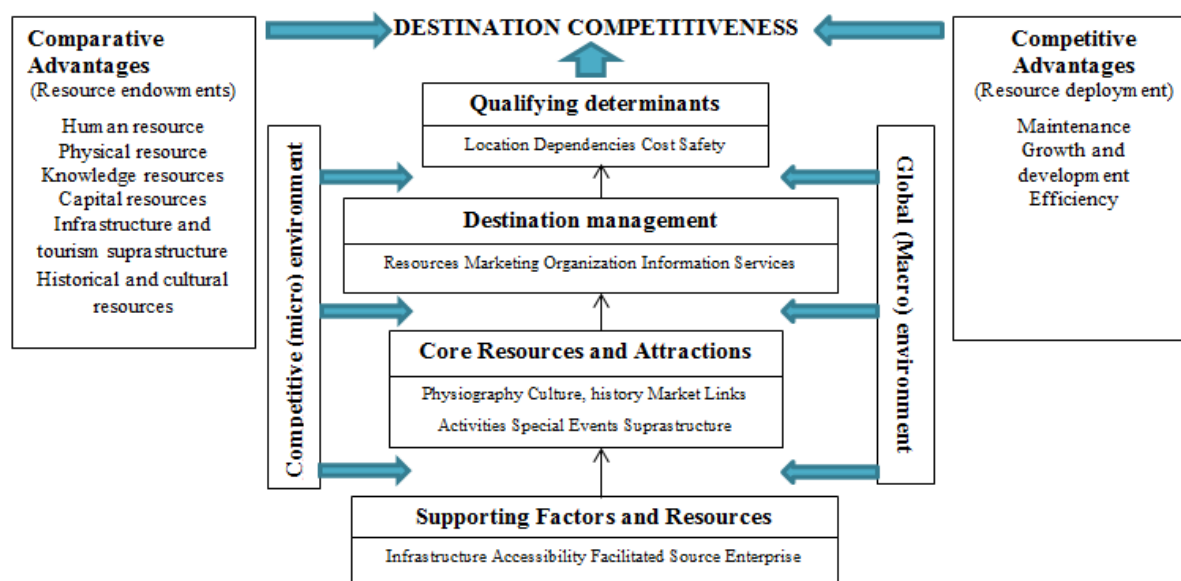
Source: Own construction based on Crouch and Ritchie (1999)

Authors took into account, based on Porter's diamond model, those factors which could be ordered into a regression: they examined both national, industrial specifics and company-based variables. These were all associated with factors of tourism competitiveness and the concept was defined by a summary of each (Enright and Newton, 2004). To increase destination competitiveness, an adequate environment is required, and this can be ensured by means of supplementary factors - for instance, transport. Supplementary factors are those, which have the potential to modify the competitiveness of other factors in either a positive or negative direction. As a result of this modifying role, these factors are limited to destinations in respect of attractiveness and hospitality capacity. In the model, sustainability plays an important role, although Crouch and Ritchie do not interpret thist as an economic or ecological phenomenon, but, rather, from a social and cultural point of view. The key to competitiveness is ***complex tourism destination management***, which involves all of those factors which enable tourists to enjoy the attractions of the area. The most important novelty in the Crouch-Ritchie model – apart from their detailed elaboration – is the fact that the policy which is responsible for image framing and for the popularization of a destination is not a separate pillar, but ***was indirectly built into the calculated micro-factors***

The second model in chronological order is ***Go and Govers's*** (2000) theory. In their study we can differentiate seven factors, which are the main indicators of touristic competitiveness: ***infrastructure, accessibility, range of services, climate and natural environment, general attractiveness, image and efficient operation.*** These connections merit further consideration.

A given touristic destination can be comparable with others based on the factors mentioned above, but what happens when significantly more foreigners start to stay longer in the destination? When guests come from abroad, the role of the *exchange rate* becomes much more important. For example, a higher-quality Hungarian destination may be relatively cheap for a guest from Austria. By converting money, foreigners can enjoy advantages which will encourage their willingness to spend more (Dwyer et al., 2000). The presence of rich, foreign tourists is an important competitiveness factor, and it is no coincidence that the number of foreign guest-nights is recorded separately from the total. *The cost of services* should be adjusted to the potential guests, as *Craigwell* (2007) stated in his theory.

Based on Crouch and Ritchie's results, *Dwyer and Kim* (2003) constructed an integrated competitiveness model. Contrary to the Crouch model, this took into account demand conditions as a major factor in defining the competitiveness of a destination. The authors define the competitiveness of a destination by investigating three components: first, natural resources and general attractiveness, second, destination management's responsibilities (governmental and industrial cooperation opportunities, branding etc.) and third, the group of factors involved with actual and potential demand conditions.

The global economic crisis had a serious impact in many economic fields, including, of course, tourism. Nevertheless, there were, and especially in Hungary, some positive forecast effects of the crisis. The crisis opened new ways for general tourist flows and facilitated new trends. Environmental issues such as UV radiation and the natural environment reinforced these. Raffay (2010) opined in his study that Hungary could profit from the changes, since our baths are cheaper to run than those in the neighbouring region of Burgenland and that the quality of services provided in the most competitive Hungarian medicinal and thermal spas was excellent. Tourists have more limited funds for visiting spas, and so they stay for shorter periods or use cheaper accommodation. In this way they enjoy the services but reduce all other costs. Hence, post-crisis, more economical travel is the most important motivation and aim of people who visit Hungarian destinations.

Kayar and Kozak (2010) also built a model, but first used the results of previous authors. Their research follows resource-based theories: they examined the competitiveness of Turkey from a health tourism point of view ND, based on the WTTC[58] index (2007), they defined 13 significant factors which determine the touristic competitiveness of settlements. For instance, in their model, *political regulations, environmental regulations, safety, hygiene, human*

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[58] World Travel and Tourism Council

resource management, national cultural attributes and natural resources play an important role. **Gooroochurn and Sugiyarto** (2005) in their model emphasized the importance of the social embeddedness of tourism.

Based on the above model, many studies were written in which authors tried to make use of similarities. It seems widely accepted that one of the best approaches is the study by **Armenski, Markovic, Davidovic and Jovanovic** (2011) who examined the competitiveness of Serbia in health tourism. Authors used a questionnaire based on the Dwyer-Kim model. Their paper differentiates two groups of factors: **natural and cultural resources, tourism related settlement infrastructure and their accessibility and quality.**

By way of a summary of tourism competitiveness models, the following table (Tab. 1) demonstrates the key elements of these models:

Table 1 The most important competitiveness indicators

Authors	Key of success
Poon (1993)	Central role of tourism
Crouch-Ritchie (1999)	Complex destination management
Dwyer-Forsith-Rao (2000)	Exchange rates
Go and Govers (2000)	The accessibility of establishment, efficiency
Dwyer-Kim (2003)	Natural resources and efficient destination management
Gooroochurn-Sugiyarto (2005)	Prices, social factors
Craigwell (2007)	Demand conditions
Raffay (2008)	Travel "economically"
Kayar-Kozak (2010)	Transport infrastructure
Armenski et al. (2011)	Touristic infrastructure

Source: Own construction

From the table it is clear that authors ascribe importance to different factors. The table only involves factors which are more important in one author's models than in others or factors taken into account significantly more highly in calculating competitiveness index or position.

To determine the competitiveness position it is not enough to draw conclusions from the models; adequate methodology is necessary to engage the theoretical background. This is a huge challenge for researchers, since accessibility of the required data is extremely limited; there are also some factors which could not be numerical variables but most be taken into

account by calculating models (Simon, 2006). Complex destination management should individually evaluate different factors – an extremely difficult part of tourism activities.

Spa Settlement Touristic Competitiveness Index (SSTCI)

In the last chapter the most important tourism destination competitiveness models were shown, based on which we define our own competitiveness index (hereinafter SSTCI). For constructing the model in the study, the touristic destination is identified as a settlement. SSTCI has *six different sub-indices*:

I. *Touristic ratios* of the given settlements (30 indicators)

II. *Health touristic ratios* of the given settlements (9 indicators)

III. Settlement *infrastructure* (25 indicators)

IV. Settlement *economy* (13 indicators)

V. *Social attributes* of the settlement (7 indicators)

VI. Questionnaire results from the *medicinal and thermal baths* examined (5 indicators)

By building the model we took into account the structure of the TPI (Tourism Penetration Index), a *complex* ratio measuring *the effects of tourism* (McElroy and Albuquerque 1998). The aim of TPI index is to measure socio-economic development from the perspective of tourism and the role of touristic activities. Authors clearly define their expectations against an index: it must be operated by a simple normalising scheme to be able to interpret easily, to be sufficiently comprehensive to capture major dimensions and adequate for broader use. The methodology of the model is relatively simple and clear – and so it was useful for constructing our model. Each variable was calculated only in relation to its tourism-related factor, and so, for instance, the growing number of cars due to tourism. Authors used population density, crime figures, the number of motor-vehicles per 1,000 population, waste production and the annual rate of deforestation to measure the effects of tourism on the social and natural environment. For our model, the structure, the different levels (index, sub-indices, variables) was the key. Based on the logic of TPI and the literature for our topic, we calculated our own index with the help of the distance method with the following formula:

$$\mathbf{T = X/X_{max}}$$

$\mathbf{T}$ = The final value of a given sub-index at a settlement

$\mathbf{X}$ = The original sub-index value at a given settlement

$\mathbf{X_{max}}$ = The maximum value of the sub-index between all of the settlements

Examining the logic of SSTCI the correspondence of sub-indices and indicators is most important, and so those settlements are the most competitive which are consistent from all of the points of view examined and not those with overhanging results. In order to vindicate the effects of all results, sub-indices had to be standardized. As a result, the values of the sub-indices were between 0 and 1. We had to take care, since some indicators had converse scales. For instance, for the unemployment rate, the lowest value was best, whilst for the number of tourist nights, the highest was so. We had to standardize the scales also. We calculated the value of each sub-index based on weights derived from our factor analysis. At first approach, only one factor was taken into account - that which had the highest R^2 value, since this seemed a perfect tool for decreasing the number of variables analysed. However, there were some variables, which are extremely important, especially for the touristic sub-index – for instance, the average length of stay – which were out of the model as a result of this selection process. This was totally contrary to theory and practice, and so we decided to exclude variables based on the literature. The other reason for changing the logic of this task was that, by factor analysis at social and tourism sub-indices, we lost more than 45% variance explained. Hence, after a re-evaluation of variables, a new factor analysis was run. Technical details will be discussed in the paper by featuring the sub-indices. SSTCI was calculated as the simple arithmetic average of the 6 sub-indices:

$$\textbf{SSTCI= } (T_{tour.} + T_{healtht.} + T_{infrastruc.} + T_{eco} + T_{soc.} + T_{spa})/6$$

By building up the model we thought that tourism could not determine the competitiveness of settlements, but that it could modify the economic and social infrastructure position of settlements. Health tourism is a special segment of tourism based on medicinal and thermal baths and so has a special role in the economic life of settlements. The following chart (*Chart 2*) demonstrates the main components of our model and the correspondence between them:

Figure 2 The structure of SSTCI
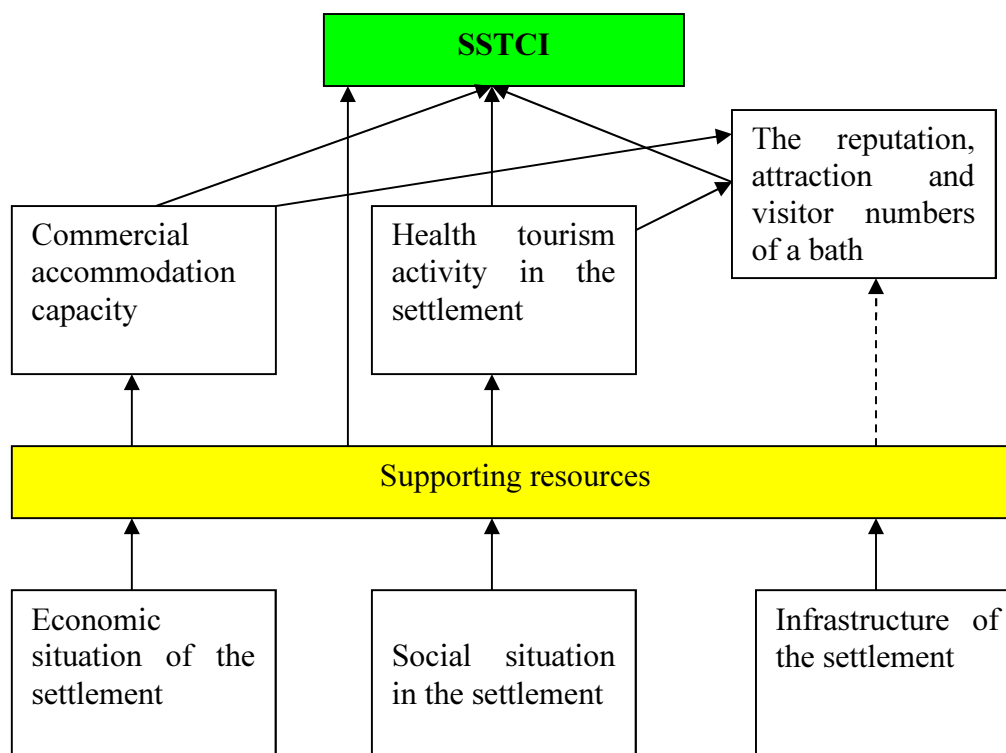
Source: Own construction

It is clear that the ratios can be grouped into two sections: on the one hand, the economic, social and infrastructural figures are decisive for calculating the general competitiveness of a settlement, whilst, on the other hand, health tourism is capable of changing its potential. By building up a competitiveness index, the first three factors must be considered as supporting resources, which provide an adequate environment for tourism. The touristic ratios of settlements (mainly the supply of commercial accommodation places and their bed occupancy), the health touristic supply and medicinal and thermal baths are the factors which can discriminate SSTCI from other settlement competitiveness models. We used data from 2011 and 2012 for the analysis.

Within each sub-index, the different variables were taken into account with different weights, and we calculated the weights with the help of factor analysis, choosing the highest value for each variable as the weight from the Rotated Component Matrix.

The first group of figures involves the touristic ratios of settlements. These relate to *tourist arrivals* (the number of arrivals, the number of guest nights, the average length of stay). Foreign tourist arrivals are differentiated. Other figures measure *commercial accommodation places*, bed occupancy, revenues etc. Factor analysis revealed 6 factors and the total variance

explained is 85.19 % (KMO-criteria[59]: 0.453, Bartlett-test: 3276.34, p-value 0.00). Based on KMO criteria, this group is not proper from the methodology point of view, but on the significance of the Bartlett test we accepted the analysis. Furthermore, the communalities exceed 0.8.[60]

The second sub-index examines a more specific dimension – the *health tourism potential* of settlements. The figures are the same as in the first sub-index, but restricted to *medical conditions*. These variables are the most specific elements of our model; they are not part of general settlement competitiveness, and operating a medical hotel is unique. These figures made the biggest differences among the settlements examined. Only one factor was constructed, which explained 89.82% of total variance. The applicable terms of factor analysis were fulfilled.

The third sub-index (which is strongly related to general settlement competitiveness) is the *infrastructural asset value of a settlement, was* based on a number of variables. Those figures which measure the *life quality(QoL) of inhabitants* play an important role in the analysis – for instance, the level of public works, the relative size of green areas, the transport network, the number of internet-using households. Three factors explained 83.53% of the total variance (KMO 0.739, Bartlett test 1922.44, p – value 0.00).

The next sub-index deals with the *economic performance* of settlements. In the first two chapters I demonstrated the most important models and relationships between the economic potential and the QoL of residents. In order to evaluate the economic performance of a settlement it is necessary to calculate the level of *locally generated income*. We examined local tax revenue, the number of *job seekers* and also the age distribution of inhabitants. These figures could be grouped into three factors (Total variance explained 76.69%, KMO 0.685, Bartlett test 613. 48, p-value 0.00).

The level of *social care* was also examined and built into the model, as the fifth sub-index. The sub-index involves the level of potential social treatment at the settlements. Based on the logic of the TPI index, we also examined the *safety* of settlements. The variables are dissolved into two factors with the applicable terms of factor analysis fulfilled (KMO 0.705, Bartlett test: 217.75, p – value 0.00).

The sixth group contains five figures from our own questionnaire. Research was carried out between the 18th and 28th of February, 2013, with the help of telephone interviews

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[59] "KMO-criterion is one of the most important index-numbers in deciding whether the examined variables are suitable for factor analysis or not." (Sajtos and Mitev, 2006, 258.).

[60] 'Communalities show the variance of original variables explained by the new, technical variables.' (Sajtos and Mitev, 2006, 402.)

(CATI). The respondents were drawn from the adult population (over 18) and were selected by quota sampling, representative of the Hungarian population's age and gender distribution. Our examined sample comprised 1,000 Hungarians from the whole country. The aim of the questionnaire was to examine those factors most relevant to the destination-selecting decisions of tourists. The questionnaire has three different parts: the first deals with the frequency of visiting medicinal and thermal spas, the second with the factors themselves and the required services and the third with satisfaction measurement. For this index, variables were calculated from the first part of the questionnaire, whilst other parts are still under investigation, with their results to be published in the near future. We built into the composite index those figures from the questionnaire which dealt with **reputation and visitor numbers, together with** the **willingness to visit,** and so we can estimate the potential number of visitors and **monitor the trends** read in the literature. The results produced by the questionnaire could be built in two different factors, with the total explained variance being 76.97%, KMO 0.56, a Bartlett test 75.93, p – value 0.00.

The following table (Tab. 2) demonstrates the results:

Table 2 Settlement ranking by both composite and at sub-index level

Ranking	Settlement	Tourism	Healthtour.	Infrastruc.	Economic	Social	Bath
1	Zalakaros	1	1	25	17	13	3
2	Hévíz	1	1	23	8	37	1
3	Bük	3	3	26	10	25	1
4	Győr	15	41	1	1	17	13
5	Szombathely	25	41	5	1	15	35
6	Zalaegerszeg	28	41	1	3	16	9
7	*Kaposvár*	*30*	*41*	*3*	*5*	*22*	*18*
8	Sopron	11	41	4	4	35	17
9	*Harkány*	*6*	*4*	*12*	*15*	*19*	*6*
10	Sárvár	5	5	14	7	27	5
11	Kehidakustány	7	41	37	31	5	4
12	Lenti	19	41	19	21	3	16
13	Celldömölk	26	41	13	12	7	15
14	Mosonmagyaróvár	12	41	6	6	34	24
15	*Nagyatád*	*16*	*41*	*10*	*18*	*10*	*25*
16	Bázakerettye	14	41	33	33	1	36
17	Vasvár	36	41	29	27	1	38
18	Kapuvár	17	41	15	19	9	26
19	Zalaszentgrót	27	41	24	26	8	10
20	Gelse	41	41	34	38	4	29
21	*Marcali*	*22*	*41*	*17*	*14*	*11*	*23*
22	*Igal*	*18*	*41*	*27*	*29*	*12*	*7*
23	Barcs	23	41	8	23	18	28

Table 2 (continued)

Ranking	Settlement	Tourism	Healthtour.	Infrastruc.	Economic	Social	Bath
24	Letenye	37	41	28	28	6	34
25	*Szigetvár*	*31*	*41*	*7*	*16*	*31*	*19*
26	Szentgotthárd	10	41	22	9	21	21
27	*Mohács*	*24*	*41*	*9*	*11*	*30*	*30*
28	*Dombóvár*	*21*	*41*	*11*	*13*	*32*	*12*
29	*Siklós*	*33*	*41*	*16*	*25*	*28*	*11*
30	Lipót	8	41	39	34	24	8
31	*Tamási*	*34*	*41*	*20*	*24*	*26*	*20*
32	Csorna	32	41	18	20	23	31
33	*Csokonyavisonta*	*13*	*41*	*30*	*36*	*20*	*32*
34	Hegykő	4	41	35	30	38	27
35	*Dunaföldvár*	*39*	*41*	*21*	*22*	*33*	*37*
36	Mesteri	35	41	40	40	29	33
37	*Szulok*	*38*	*41*	*38*	*41*	*14*	*40*
38	Borgáta	9	41	36	37	39	22
39	*Magyarhertelend*	*29*	*41*	*41*	*39*	*40*	*14*
40	*Babócsa*	*40*	*41*	*32*	*35*	*36*	*41*
41	*Buzsák*	*20*	*41*	*31*	*32*	*41*	*39*

Source: Own construction

The table above shows the ranking of all 41 settlements from the two selected Hungarian regions based on SSTCI. (I*n italics are the* settlements from the less developed region, South Transdanubia.) The first column shows composite rankings and those following the names of settlements show rankings within each sub-index. It is clear that regional differences are significant. On the basis of the sub-indices, the correct handling of extreme values was most important. To fulfil this, we used 97.5% capping at sub-index level – necessitated mainly by the first two sub-indices, where Hévíz, Bük and Zalakaros had extremely high figures. 97.5% capping means that, for instance, in the first sub-index, Hévíz gained first position with an extremely high value, and so, targeting normal distribution, we decreased Hévíz's sub-index value to the level of the second settlement – Zalakaros – and did the same by each sub-index.

It is clear that, in the **state of development of the top 3 settlements, tourism plays an important role**, since tourism, health tourism and bath sub-indices have extremely high average values with a very unremarkable standard deviation. In the 100-point scale the top 3 settlements – Zalakaros, Hévíz and Bük – have in the tourism sub-index 97.42 points, but the **bath sub-index point** is even higher (99.67) - **almost maximum level**. The social sub-index level is moderate (in this sub-index Zalakaros has position 13, Bük 25 and Hévíz 37). Further, **the economic and infrastructural factors have very low values**. Our expectations for the future show that the **positive extern effects of tourism can be seen firstly in these settlements from our sampl**e, since, under Hungarian circumstances, these 3 settlements have significant

health touristic potential and tourism has a huge role in the local economy on a demand-pull basis (Poon, 1994). It is important to note that the ranking of the 3 settlements may at first be surprising. Zalakaros is much better in social figures and the advantage of Hévíz in touristic potential was eliminated with the capping.

The model is based on general settlement competitiveness also. The bigger towns of the two regions are between positions 4 and 8 as a result of their size, but their touristic indicators are low. They provide no specific health touristic services, and so the value of the second sub-index is 0. As a result of the size of these towns, the infrastructural and economic sub-indices have an extremely high value, and they occupy the top 5 positions. Social indicators are similar to those of the previous group. Visitor numbers and the reputation of the baths are relatively good, excluding Szombathely. This is interesting, since the touristic attractiveness of these towns is not only the medicinal and thermal spas; there are other, mainly cultural, touristic attractions in the towns.

In positions 9, 10 and 11 there are three settlements – Harkány, Sárvár, Kehidakustány - which have baths with very good reputations and visitor numbers. It is interesting to note that Igal is 7th in the bath sub-index. In respect of the other figures, Igal lags significantly behind the other three settlements.

Hegykő has an interesting position. Hegykő holds only position 34 in SSTCI, but the touristic sub-index of this village was 4th (!), immediately ~~behind~~ after Bük, Hévíz and Zalakaros. Hegykő has a wide range of commercial accommodation, particularly in relation to the size of the village; many foreign tourists visit the bath and so bed occupancy is very good also. SSTCI could not handle the unique situation of Hegykő, since in the bath sub-index the opinions of foreigners were not recorded. (To date this is the greatest problem in building the model). Moreover, the other sub-index values of Hegykő, such as the infrastructure and the local economy, are very weak.

CONCLUSION

The paper analyzed the competitiveness of settlements in general and specifically from the tourism point of view based on a sample of settlements from two Hungarian regions and which operate medicinal or thermal baths. With the help of a literature review, we could build up our own model SSTCI within the framework of the OTKA project No. 106283.

The main goal of the paper was fulfilled by constructing the model, which, whilst starting with general settlement competitiveness, then emphasises bath-related features due to the

research focus. The spillover effects of tourism are visible in those settlements which are on the top 3 positions, Zalakaros, Hévíz and Bük. In these, where the bath has a relatively good reputation and visitor numbers, a marketing-based development concept is suggested. For those settlements which have a limited infrastructure in relevant areas, such as an adequate supply of quality accommodation, ~~then~~ the lack of such specific development needs to be addressed. Settlements on the last 10 places – excluding Hegykő - have huge problems and it may be that their baths have no future and simply face closure.

To summarize the current state of touristic competitiveness of the investigated settlements, the ***regional differences*** in bath-related figures are clearly visible. This is also true of social, infrastructural and economical figures, but this was not the only focus of the study. Only 2 settlements are in the top 10 – Kaposvár (7th) and Harkány (9th) – from South Transdanubia. Moreover, Kaposvár is only in position 7 as a result of the economic and infrastructural potential. The size of settlement was a decisive factor. The model tries to avoid rankings based on settlement size by using a mixture of absolute figures and "per 1000 capita" variables, but the towns are significantly more competitive than villages.

Settlements are in a different situation - which can be examined as a further aim. In order to increase the competitiveness of a settlement, those indicators must be developed which belonging to the weakest sub-index.

Taking into account the sixth sub-index, the reputations of baths were not significantly different within the second half of the settlements, and, indeed, some spas have no personal face or image. In order to maximise the positive effects of tourism, baths should *elaborate **more unique services, and specialization is necessary**. '**Cooperation' and 'Competing together'** should be the slogans of future spa development, even though, unfortunately, today's version of the entrepreneurial culture limits the willingness to cooperate.

REFERENCES

Ács, P., Laczkó, T. (2008). Területi különbségek a hazai egészségturizmus kínálatában. [Regional disparities in the supply of health tourism in Hungary] Területi Statisztika, 11 (48) pp. 344-358 *(in Hungarian)*

Armenski, T., Markovic, V., Davidovic, N., Jovanovic T. (2011). Integrated model of destination competitiveness. Geographica Pannonica, Vol. 15, Issue 2, 58-69.

Bakucz, M., Klesch, G., Lamperth, J (2010). Regional factors and tourist flows and competitiveness in health tourism in Hungary. Economic Development and Perspectives of SEE Region in the Global Recession Context, 5th International Conference, Sarajevo

Balan, D., Balaure, V., Veghes, C., (2009). Travel and tourism competitiveness of the world's top tourism destinations. An exploratory assessment Annales Universitatis Apulensis Series Oeconomica, Vol. 2 Issue 11., pp. 979-987.

Barney, J., B. (2001). Is the resource-based "view" a useful perspective of strategic management research? Yes., Academy of Management Review, Vol. 26. pp. 41-56.

Boo, S., Busser, J., Baloglu, S. (2009). A model of customer-based brand equity and its application to multiple destinations. Tourism Management, No. 30, pp. 219-231.

Craigwell, R. (2007). Tourism competitiveness in Small Island Developing States. Research Paper, No. 19. UNU World Institute for Development Economics Research, Helsinki, Finland.

Crouch, G. I., Ritchie, J.R.B. (1999). Tourism, competitiveness and social prosperity. Journal of Business Research, 44, 137-152.

Dwyer L., Forsyth P., Rao P. (2000). The price competitiveness of travel and tourism: A comparison of 19 destinations. Tourism Management, Vol 21 (1) 9-22.

Dwyer L., Kim C. (2003). Destination Competitiveness. Determinants and Indicators. Current Issues in Tourism, 6(5) pp. 369-414

Ejarque, J., (2005). Destinos turisticos de exito. Diseno, creacion, gestion y marketing, Madrid Ediciones Piramide

Enright J., Newton J. (2004). Tourism destination competitiveness - a quantitative approach School of Business, University of Hong Kong, doi.org/10.1016/j.tourman.2004.06.008

Fei Lee, C., King, B. (2005). Assessing Destination Competitiveness. An application to the hot springs tourism sector Victoria University, Victoria, Melbourne

Go, F., Govers, R. (2000). Integrated quality management for tourist destinations – a European perspective on achieving competitiveness. Tourism Management, Vol.21.(1) pp.9-22.

Gooroochurn, N., Sugiyarto, G. (2005). Competitiveness indicators in the travel and tourism industry. Tourism Economics, Volume 11, Number 1, March 2005 pp. 25-43(19)

Ilbery, B., Saxena, G. (2011). Integrated Rural Tourism in the English – Welsh – Cross-border Region. An Analysis of Strategic, Administrative and Personal Challenges Regional Studies, Volume 45, Number 8 September 2011 pp. 1139-1155.

Jancsik, A. (2007). Versenyképesség és annak fejlesztési lehetőségei a turisztikai célterületeken. [Competitiveness and its development potential in tourist destinations] Menedzsment a XXI. században, Pannon Egyetem, Veszprém (in Hungarian)

Kayar, C., Kozak, N.(2010). Measuring destination competitiveness. An application of the travel and tourism competitiveness index (2007). Journal of Hospitality Marketing & Management, Volume 19, Issue 3

McElroy, J. L., de Albuquerque, K. (1998). Tourism penetration index in small Caribbean islands. Annals of Tourism Research Volume 25 (1). 145–168.

Michalkó, G, Rátz, T., Tóth, G., Kincses, Á. (2009). A gyógyfürdővel rendelkező magyarországi települések életminőségének vizsgálata. [Analysis of residents' quality of life in Hungarian settlements with medicinal and thermal baths] Területi Statisztika 2009. (12.) 49. évf. 2. sz., pp.170-185. (in Hungarian)

Michalkó, G., Rátz T. (2010). Hungarian Spa destinations in the tourism-oriented property market. Földrajzi Értesítő – Hungarian Geographical Bulletin 59. (2) pp. 131-146. (in Hungarian)

Michalkó G., Rátz T. (2011). Egészségturizmus és életminőség Magyarországon: Fejezetek az egészség, az utazás és a jól(l)ét magyarországi összefüggéseiről. [Health tourism and quality of life in Hungary: Chapters on the coherencies between health, travel and well-being in Hungary.] MTA Földrajztudományi Kutatóintézet, Budapest, 2011. (In Hungarian)

Lőre, V. (2010). A tudástőke szerepe a vállalati stratégiában. [The role of knowledge capital in corporate strategy.] Doktori értekezés. Széchenyi István Egyetem, Regionális- és Gazdaságtudományi Doktori Iskola, Győr, 2010. (In Hungarian)

Ozturk H. E., Eraydin, A. (2009). Environmental governance for sustainable tourism development: Collaborative networks and organisation building in the Antalya tourism region. Tourism management, doi: 10.1016/j.tourman.2009.01.002

Piskóti, I., Dankó, L.,Schupler, H., Büdy, L. (2002). Régió és településmarketing. [Regional and settlement marketing] Complex Kiadó, 2002. (in Hungarian)

Poon, A. (1993). Tourism, Technology and Competitive Strategy. Wallingford. CAB International

Porter, M. E. (1990). The competitive advantage of nations. Harvard Business Review, March-April

Raffay, Z. (2010): Effects of the global economic crisis on Hungarian tourism destinations. In: Csapó, T., Kocsis, Zs. (eds.): A településföldrajz aktuális kérdései = Topical Issues

in Urban Geography: A településrendszer és a közoktatás néhány összefüggése. Szombathely: Savaria University Press, 2010. pp. 334-344.

Royo-Vela, M. (2009). Rural-cultural excursion conceptualization: A local tourism, marketing management model based on tourist destination image measurement. Tourism Management, No. 30. pp. 419-428.

Sajtos, L., Mitev, A. (2006). SPSS kutatási és adatelemzési kézikönyv. [SPSS research and induction manual] Alinea Kiadó, 2006. (in Hungarian)

Simon, J. (2006). A klaszterelemzés alkalmazási lehetőségei a marketingkutatásban. [Application opportunities of cluster analysis in marketing research] Statisztikai Szemle, 84. évf. 7. sz., pp.627-650 (in Hungarian)

Szűcs M. (2005). A magyarországi gyógyfürdők versenyképessége – Egy magyar és ausztriai létesítmény összehasonlító elemzése. [The competitiveness of Hungarian medicinal spas – a comparison analysis of a Hungarian and Austrian establishment] Turizmus Bulletin, 2005. 3.sz. pp. 42-48. (in Hungarian)

Wang, Y., Krakover, S. (2008). Destination marketing: competition, cooperation or coopetition? International Journal of Contemporary Hospitality Management, Vol. 20., No. 2. pp. 126-141.

Williams, P., Ponsford, I. F (2009). Confronting tourism's environmental paradox: Transitioning for sustainable tourism. Futures, doi:10.1016/j.futures.2008.11.01.