Spatial Concentration of Hungary's Health Tourism

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1. Introduction

In our days, the different forms of health tourism play an increasing role in today's tourism industry and in the economic performance of numerous countries (Aubert-Berki 2007). During the last decade in which health tourism significantly developed, the most dynamic development is experienced in the area of wellness tourism both in domestic and international relations. Such general trends as the strengthening of individualisation, demographic change, the increasing social role of women, spiritualisation or the spread of civilisation diseases and the re-evaluation of healthy lifestyle initiated the social framework for wellness services and products (Friedl 2007, Zsigmond 2007). According to the professionals of different disciplines, due to the changes in society and the favourable economic performance of the industry the wellness market will be the most dynamically developing branch of tourism and economy of the future as well.

From the middle of the 1990s a significant realignment process started in the world market of health tourism, due to which the demand volume of wellness tourism by today grew two times the turnover of the traditional health and thermal tourism. As the result of the last 15 year's "wellness boom" the number of service providers in numerous countries (Germany, Austria, USA) grew tenfold adequate to the altered expectations, providing new services, products and complex wellness tourism products. Recently the countries with most significant wellness supply and turnover are found in Europe, North America and South-East-Asia where there are considerable differences between the features of the provided services, the social basis and notion for requisition (Rátz T. 2004, Kiss K. - Török P. 2001). The market processes, experienced in these tourism markets, Hungary has to comply with as well because on the one hand the population of the upper mentioned countries mean the most important international guests for the domestic health tourism service providers and, on the other hand, Hungary was, and will be, traditionally one of the main actors of the international health tourism market. For this, it disposes resources for a unique façade and market advantage of which more wide and effective utilisation became more and more important, due to the cumulative domestic interest and the competitor European, dynamically developing, health tourism markets.

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2. The Position of Health Tourism in Hungary

In Hungary there are more than 200 such settlements in which' tourism supply the health and/or wellness services and products are present in a determining calibre. Based on the size and expansion of their guests there are settlements with international, regional and local importance concerning their health tourism attractions. The tourism significance of settlements with international health and/or wellness service providers is shown by their place in the rank of the most visited Hungarian cities. In the rank of the cities attracting domestic visitors our most famous spa cities have very genteel positions: Hajdúszoboszló, Hévíz, Zalakaros and Bük. These settlements due to the significant increase of their guest flow improved their positions compared to the latter years (in 2005, Hajdúszoboszló was 3rd, Zalakaros 10th in the same ranking). Compared to the previous year, among the cities with significant increase of the guest flow, Siófok (+42 000 guest night), Sopron (+53 000), Debrecen (+90 000) and Eger (+17 000) dispose, apart from their other attractions, a broadening health tourism supply as well.

Table 1. The ranking of the most visited Hungarian cities by foreign and domestic tourists in 2006 *(number of guest nights, 1000 person)*

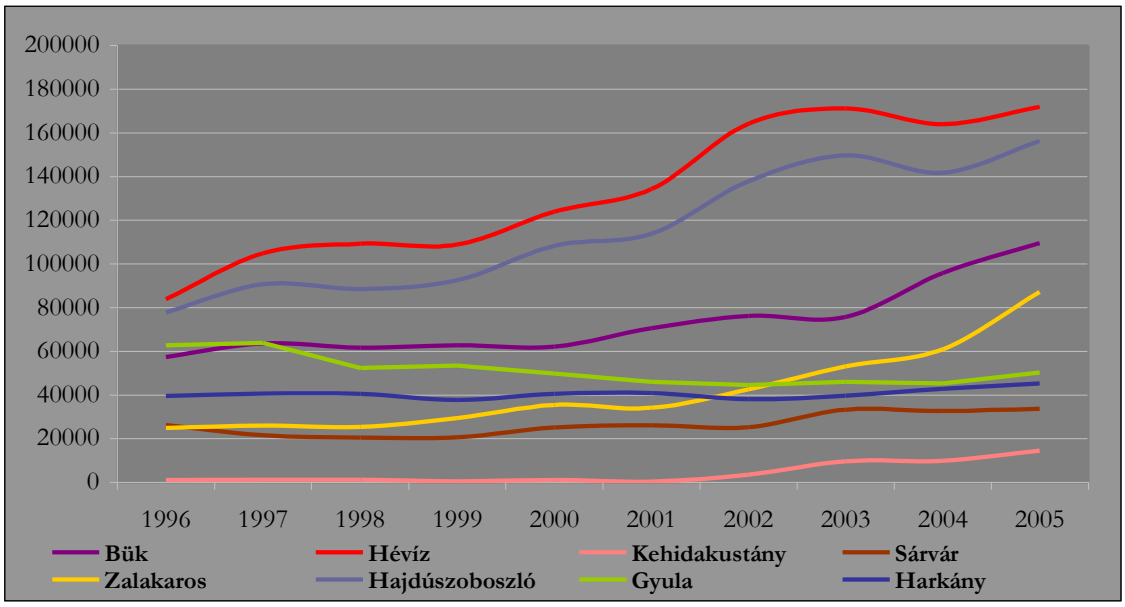
	Domestic	Foreign	Total
1	Budapest (877)	Budapest (5 235)	Budapest (6 112)
2	Hajdúszoboszló (531)	Hévíz (595)	Hévíz (927)
3	Siófok (345)	Bük (339)	Hajdúszoboszló (823)
4	Sopron (338)	Hajdúszoboszló (324)	Siófok (669)
5	Hévíz (332)	Siófok (291)	Bük (533)
6	Debrecen (284)	Zalakaros (282)	Balatonfüred (431)
7	Zalakaros (258)	Balatonfüred (138)	Sopron (409)
8	Eger (226)	Debrecen (115)	Debrecen (399)
9	Szeged (213)	Győr (112)	Zalakaros (396)
10	Bük (194)	Harkány (91)	Eger (307)

Source: CSO/KSH 2006

The increasing interest of foreign tourists to Hungarian health resorts and service providers is demonstrated by that there is five rural cities (Hévíz, Bük, Hajdúszoboszló, Zalakaros, Harkány) with famous health spas in the top 10 most visited cities of Hungary in 2006. Analysing the total guest flow registered in the domestic commercial accommodations we can state that almost all of the most favourable top ten cities of Hungary dispose an important spa or hotel with health and/or wellness services.

In the change of the volume of the domestic health tourism – either based on the most significant rural spas or the research of guest flow in wellness and curative hotels – in the latter period of time a considerable increase was experienced (*Figure 1.*).

Figure 1. Guest flow between 1996-2005 of the most significant rural spas of Hungary (number of guests, 1000 person)



Source: KSH Idegenforgalmi Statisztikai Évkönyv/CSO Tourism Statistical Almanac 1996-2003, Turisztikai Statisztikai Évkönyv/Tourism Statistical Almanac 2004, 2005

From 2001, after the slow increase characteristic to the beginning of the researched period of time (in certain cases decrease or stagnation e.g. in the case of Gyula, Sárvár, Harkány) due to the great scale state support and the connected investments and the factors strengthening health tourism at that time, the number of guests rose in a fast pace as a result of which the number of guests, compared to 1996, tripled in the three most important settlements, (with the highest guest statistics) Hévíz, Hajdúszoboszló and Bük. Along these, a significant, year by year, guest number

increase was characteristic to Zalakaros and Kehidakustány. The demonstrated increase concerning guest flow was not characteristic to the whole country. Such a famous spa as Harkány with international fame and significant amount of investments could only raise at a minimum pace its guest numbers, and Gyula definitely lost its guest flow compared to the ten year earlier statistics. At both cities, the positive increase in their turnover in the last couple of years, can be evaluated as an advantageous process.

According to the statistics of the CSO, in 2007, every 5th (20,7%) guest nights out of the commercial accommodations and almost every 3rd (29,5%) guest nights out of the hotels were spent in health and wellness hotels. While on a national average, concerning commercial accommodations, a 1,1% of increase was registered compared to the preceding period of time, concerning wellness hotels there was a 13,6% increase with a plus 82 000 guests than in 2006. This, compared to the preceding years' trends, show a decreasing measure but out of the commercial accommodations they still show the most dynamic increase.

Table 2. Guest flow of domestic wellness hotels between 2004-2007

Wellness hotels	Foreign	Domestic	Total	Foreign	Domestic	Total
	Number of guests (thousand)			Number of guest nights (thousand)		
2004	39,5	115,9	155,4	171,5	241,3	413,0
2005	52,3	230,7	283	211,3	490,3	701,7
2006	108,6	399,5	508,1	372,5	882,3	1254,8
2007	131,0	459,0	590,0	396,0	1029,0	1425,0
2007/2004	**+ 332,1%**	**+ 396%**	**+ 379,6%**	**+ 230,9%**	**+ 426,4%**	**+ 302,6%**

Source: CSO/KSH

It can be seen from the data of *Table 2.* that both the number of guests and their guest nights increased, due to which the turnover tripled compared to the three years earlier statistics. Analysing the ratio of foreign and domestic guests we can state that in the wellness hotles the domestic guests are determining, since more than 75% of the guests and two thirds of the guest nights was realised by domestic tourists in 2007, and these ratios were formulated in the latter years alike as well. Apart from the alteration of the domestic guests The increase of guests and guest nights as trends in the case of the foreign tourists seems to be a promising tendency as well.

One of the most dynamic branch of tourism and the Hungarian economy as well is health tourism, which disposes of further significant provisions and development potential. The macro economic importance and effectiveness of curative and wellness tourism is shown by that every

100 HUF spent by the guests produces 167 HUF supplementary production and every 100 workplaces in the industry generates 214 new ones. Between 2001-2006 the multiplicator or twisting effect value of the investments in health tourism was 270 billion HUF (KOCZISZKY 2004). Between 2001-2003, the 30,9 billion HUF support of the Széchenyi Plan generated the annual income of the supported areas by 17 billion HUF by 2006, created 5267 new workplaces and contributed to the GDP increase by 176,6 billion HUF (MUNDRUCZÓ 2005). According to the statistical data 10,5% of the domestic GDP is produced by tourism and its 20% by curative tourism. By the end of 2004 this ratio further increased due to the changes of the statistical system (from 2004, wellness tourism appeared as independent category in the registry of the Central Statistical Office). Hence, health tourism shares approximately 30% of the domestic tourism and contributes to the GDP with 3%.

According to economic and tourism experts, in the domestic economy of the future decades health tourism based on thermal and curative waters should fulfil a more important role than at present. The development of the curative and wellness tourism, conceptualised in the several national, regional and local strategies and development programs as highlighted priority, is supported by numerous factors, international and national trends and the disposable aptitudes – both natural and social – as well:

1. The curative and wellness tourism disposes numerous advantages compared to other branches of tourism:

- the negative effect of seasonality prevails much less (while in 2006 there was a more than four times difference between the guest flow of January and August in the commercial accommodations, than at wellness hotels it was 2,5, and concerning curative hotels only slightly more than 2 times) (KSH/CSO),
- the average length of stay is longer (in 2007 the mean stay was 2,7 while in curative hotels 3,6 nights were registered) (KSH/CSO),
- the capacity utilisation is better (in 2007 curative hotels registered 63,9% capacity utilisation while wellness hotels 51%, which exceeded the national average of 49,8%) (KSH/CSO),
- the expenditure is 30-35% higher than at other areas of tourism (KSH/CSO).

2. The natural features of Hungary from the point of view of tourism are excellent, their future utilisation could be significantly broadened. After Japan, Iceland, Italy and France Hungary is the 5th most important country with curative and thermal water resources (GELLAI I. 2004). Under

80% of the country there is a significant amount of water with more than 30 C^o temperature. They supply nearly 1300 thermal springs out of which the qualified curative waters are 147 altogether (GELLAI I. 2004) which is utilised by 56 curative hotels and 70 qualified curative spas (OGYFI 2008). Apart from the thermal and curative waters Hungary disposes of such curative factors already utilised as well in health tourism as curative cave, characteristic micro climates, curative mud and curative gas.

3. A great advantage of Hungarian health tourism is our several hundred years old spa culture and the fame and international familiarity of our curative spas (KPMG 2002). It is part of our spa culture that the Hungarian population willingly visits the curative and thermal spas in their free time, which is also well shown by the statistical data, according to which in 2006 out of the five most visited domestic cities by Hungarians four definitely are spa cities (Hajdúszoboszló, Siófok, Hévíz, Zalakaros). Besides this it can be said about the Capital as well that its curative and thermal spas and hotels serves a significant amount of turnover.

4. In Hungary as well, similar to the international relations, the healthy lifestyle and the need for health preserving and also the demand for prevention activities and services significantly raise. (OLEF 2000, 2003, Hungarostudy 2002, 2005).

5. The demographic changes characteristic to the majority of the developed world consider both Hungarian population and tourism as well at a great extent (e.g in Germany according to the forecasts by 2050 every second citizen will be older than 55 years). These alterations will supposedly significantly raise the demand for the different preventive, curative and post-curative tourism services (ESPA 2006).

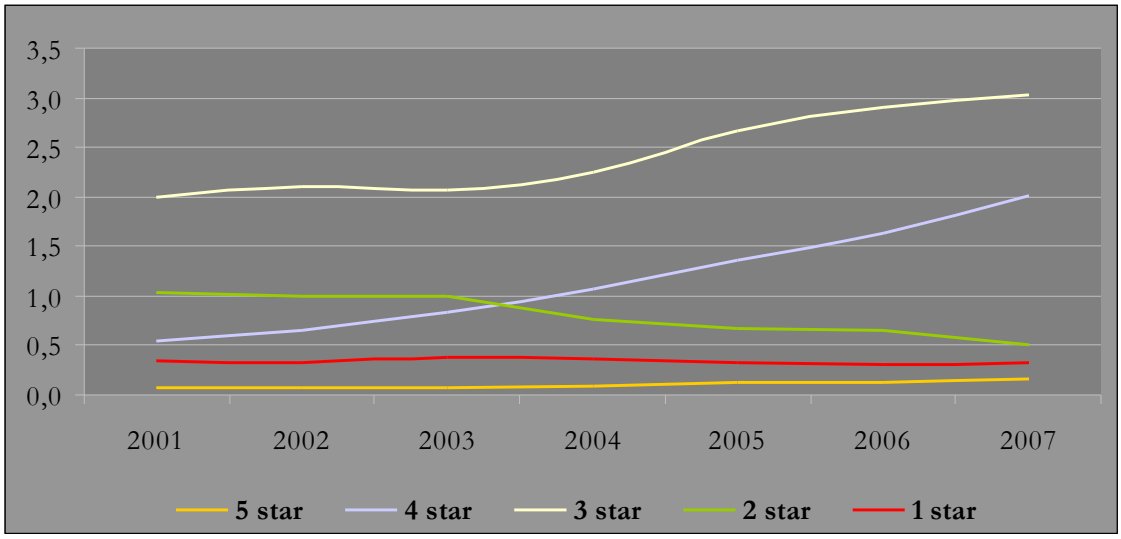
6. The competitiveness of the domestic international actors providing international quality of service will be raised by the supposedly long lasting price advantage concerning the European relations. (STROMPF 2006)

7. The alteration of the regulation concerning the European Union's health insurance companies can also produce an advantageous situation for the domestic curative service providers according to which the foreign maintenance within the EU can be reimbursed. It is an important change that the choosing of doctors became free within the member states (which is valid not only at urgent situations but at ambulant treatment as well) and that in the case of the choosing, as a principle not anymore the better, but the at least the same quality is the requirement. (STROMPF 2006)

8. The trend towards the decrease of travel costs (the mass appearance of low budget airlines) in the international travels can give a further drive to the wellness and curative tourism due to which the shorter stays could be rewarding and attractive as well (STROMPF 2006).

9. There is a change experienced recently at both domestic and international relations that the higher quality level 3, 4 and 5 star hotels are becoming more and more cherished by the tourists. Based on the last six years of turnover in domestic hotels it can be clearly seen that the turnover of the 4 and 5 star hotels increased over against the lower 1 or 2 star hotels in which annually less and less guests are spending their nights. In 2007, the tourists spent 2,2 times more in the 5 star hotels, more than 3,5 times more in the 4 star hotels and 50% more in the 3 star hotels, with the greatest volume of turnover, than in 2001 (the number of guest nights grew in the researched period concerning commercial accommodation 6,5% and hotels 20%).

Figure 2 Domestic guest flow in the Hungarian hotels (million guest night)



Source: KSH/CSO

10. The increase of the domestic demand for health tourism products was promoted by the holiday voucher system introduced in 1998. The system which since its introduction grew nine times, according to its turnover, was created to promote domestic tourism since the experiences show that concerning international tourism only such a country can be competitive which' internal market is strong as well. In 2006 an altogether of 825 000 travels were supported by 23,5 billion HUF out of which 48% was spent in domestic commercial accommodations. Out of the commercial accommodations the most popular ones were the 3 star hotels where 1/3rd of the voucher's turnover was transacted.

Table 3. Overall data on the holiday voucher system

	Voucher sale (million HUF)	Number of the supported (person)	Income of commercial accommodations from holiday voucher (million HUF)
1998	1 656,9	98 277	
1999	2 078,0	130 342	
2000	2 050,8	119 973	
2001	1 803,1	90 275	
2002	2 313,0	115 000	
2003	4 850,0	174 000	
2004	7 465,0	291 831	
2005	10 200,0	493 025	7 195
2006	23 500,0	825 649	11 364
2006/1998	**14,2**	**8,4**	

Source: KSH Turisztikai Statisztikai Évkönyv/ CSO Tourism Statistical Almanac 2005, KSH Turizmus Magyarországon/CSO Tourism in Hungary 2006 with preliminary data

11. Due to the foreign research experiences on the reimbursement of the sums on workplace health preserving programs, the domestic middle and large enterprises as well more and more often accept and get to know the role of wellness and other preventive programs for the reproduction of the work force. Based on the results, it can be seen that on the influence of the worksite wellness programs not only the health care costs (with 3,48-5,42 euros at every invested euro) and the missing of the workers decreased, but the productivity and the loyalty to the firm is advantageously changing as well (ZOPCSÁK 2007).

3. WELLNESS SUPPLY IN HUNGARY

Alike to the international trends in Hungary as well the range of enterprises providing wellness services is growing in its number and is more and more complex. Today for requisition of wellness services the most often type of locations are the following in Hungary:

- in wellness hotels, or at wellness departments (e.g. curative hotels) of different classification of commercial accommodations,
- in the developed units of curative, thermal and experience spas,
- health centres,
- and at daily wellness service providers: here belong the wellness centres which are such establishments which provide a wide range of wellness – bath, sauna, relaxation, sport and fitness – services, or are such primary fitness (wellness clubs and sport centres) or beauty-profiled locations (beauty-shop) which provide some wellness services as well. Their common feature is that they do not dispose with accommodation, the requisition of programs, treatments and services extends from a couple of hours to one day.

It is very hard to determine with exact up-to-date data the size of the domestic wellness market because of the fast extension of the service providers, the terminological and classification problems (for instance the classification of hotels by an own classification, or the missing of a unified quality insurance) and the registration problems of such service providers.

The most spectacular part of wellness tourism which can be statistically followed and measured at the easiest was is the turnover of the hotels. The objective research for demand and supply relations was realised by the minimum criteria system of the 54/2003 (VIII. 29.) GKM (Ministry for Economy and Transport) regulation. According to the 6.§/C point of the regulation: "The wellness hotel is adequate to the requirements of the minimum 3 star hotels further on provides bathing, sauna, gastronomy, sport, relaxation and community programs and wellness services for the needs of healthy lifestyle."

In January, 2008 the Hungarian Hotel Association registered 29 and the CSO 63 qualified wellness hotels which disposed an altogether of 9866 places. Besides these by today there are a number of such hotels which are entitled with the term wellness and provide a wide range of quality services for their guests and which, due to the activity of travel agencies and travel organisers and their own promotion, dominantly appear on the domestic wellness market's supply. Due to these hotels in 2007, in Hungary, there were more than 150 hotels registered with a wide range of wellness services with a total of 27 000 houseroom capacity (LACZKÓ-RÉBÉK 2008), which is a dynamically growing scope since in the second half of 2007 the investors intended to deliver several hotels with such profile.

4. Curative tourism supply in Hungary

Hungary provides a wide range of supply of the curative services based characteristically on natural curative factors (primarily curative waters, caves, micro climate and curative mud). Concerning these service providers the emphasis is on the cure which is rather complemented by the general tourism services and attractions (Gellai 2004). However in the case of the curative hotels, as a new phenomena, there is an approximation or by today superimposition at the supply and demand services relations of the two branches (differing in their motivation) of the health tourism, namely curative and preventive (wellness) tourism. In our days a significant part of the domestic curative hotels besides the traditional curative services provides a wide range of wellness services as well which are resorted in great numbers by the guests. In 2008, 5 domestic curative hotels dispose the medical wellness qualification given by the German Wellness Association.

In January, 2008 the OGYFI (Országos Gyógyhelyi és Gyógyfürdőügyi Főigazgatóság/ National Directorate of Curative Places and Spas) registered 30, and the CSO 56 curative hotels with 13 928 houseroom capacity. Besides these there are 13 curative places, 70 curative spas, 6 sanatoriums, 4 curative caves and one mofetta in Hungary (OGYFI).

Because of the data provision deficiencies of the spas the change of the curative tourism market can be statistically the most easily measured by the research of the guest nights spent in curative hotels. Analysing the totalized guest flow, notwithstanding the only 1,8% increase of last year, we can talk about a significant broadening of guest flow in the last six years concerning the domestic curative tourism. In 2007 guest spent 29% more nights in curative hotels than in 2002. This increase first of all is due to the increase of the number of hotels and their capacity, the favourable effects of the state investments (e.g. investments of the Széchenyi Plan or the monument spa and hotel renovations in the Capital) and the dynamism of the domestic demand.

Table 4. The guest flow of domestic curative hotels 2002-2007

Denomination	Foreign	Domestic	Total	Foreign	Domestic	Total
	Number of guests, thousand			Number of guests, thousand		
2002	278	219	496	1 380	706	2 086
2003	283	250	533	1 365	772	2 136
2004	318	336	655	1 486	1 011	2 497
2005	347	380	727	1 573	1 148	2 721
2006	320	403	723	1 398	1 236	2 635
2007	314	440	754	1 380	1 321	2 701
2007/2002	**113%**	**201%**	**152%**	**100%**	**187%**	**129%**

Source: KSH/CSO

5. SPATIAL CONCENTRATION OF WELLNESS AND CURATIVE HOTELS

When analysing spatial differences we frequently meet the concept of concentration which means the compactness and focusing of different phenomena.

We can analyse the phenomenon of concentration by the criterion of quantity in a way that we compare the distribution of the analysed quantity criterion of its frequency and value aggregate, how the value aggregate concentrates on the certain units of the multitude. The focusing of the value aggregate on a few number of units is called concentration (KÖVES P.- PÁRNICZKY G. 1981).

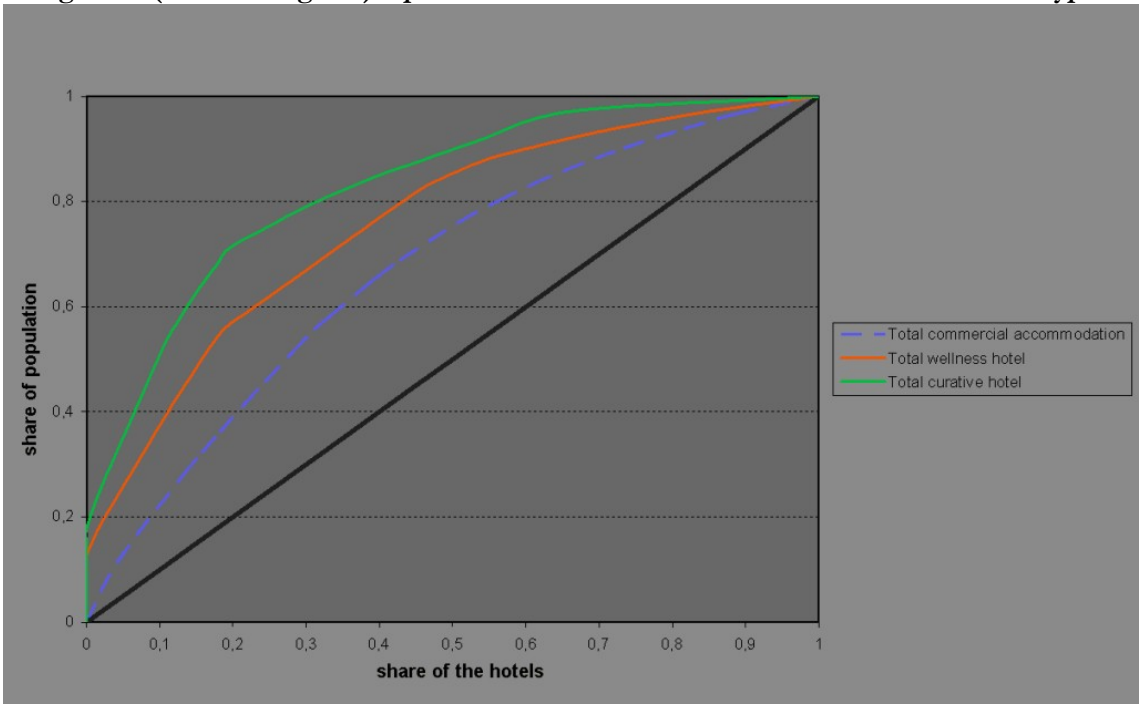
When analysing spatial concentration one of the most frequent method is the representation of the Lorenz diagram (*Figure 3.*) which basically means the graphic imagery of the concentration table.

This is a figure situated in a square with unit sides which represents the cumulated relative value aggregates (g_i') by function of the cumulated relative frequencies (z_i'). We definitely have to raise attention that the Lorenz diagram is a method used for the graphic imagery of the spatial concentration and its comparison during which we can only visualise the fact of concentration, so it is not adequate to determine of what extent is the spatial disproportion of the analysed pheno-

menon. The method is frequently utilised since if the same phenomenon is visualised in several times we can receive an easy to get information on the change of the spatial disproportion (concentration).

Before creating the Lorenz diagram, according to a given relative index, we have to order the researched data in either increasing or decreasing sequence, in this case the spatial regions (counties). If we order the data in an increasing sequence than the curve will be placed under our diagonal, and in the case of a decreasing sequence above the diagonal (ÁCS P. 2007). The basis of the research was given by the units of the CSO's inventory, since at present that is the only data base which is regularly actualised and covers turnover data on the utilised types of hotels.

Figure 3. (Lorenz diagram): Spatial concentration of the several accommodation types



Source: own calculation

The explanation of the curve: if there was such a spatial unit which would engage a great proportion of the analysed criterion, in other words the relative frequencies and relative value aggregates would significantly differ from each other, than the curve would be far from the diagonal, and in the case of complete concentration the curve would be overlapping the sides of the square with unit sides (HAJDU O. 1997). When the share of the units from the value aggregate is the same, the

cumulated relative frequencies and the cumulated relative value aggregates are equal ($g_i' = z_i'$), than in that case the curve overlaps the diagonal, which indicates the lack of concentration so the absolute equality or de-concentration.

It can be seen from the above figure that there is no spatial equality at either type of hotels' spatial turnout, but we also can not speak about complete spatial concentration. The figure also demonstrates that the smallest spatial inequality can be experienced at the spatial allocation of commercial accommodation while the biggest concentration is experienced at the spatial allocation of curative hotels. Nevertheless the curve well demonstrates the spatial concentration, but does not serve with any data on its quantity.

In the followings we wish to measure this concentration with a quantitative method with the help of two concentration indexes (Hirschmann- Herfindahl, Hoover).

The peculiarity of the Hirschmann- Herfindahl concentration index is that it does not correlate the distribution to the entirely uniform. The value of the index above 0,6 relates to a strong concentration or monopol situation[3].

Its interpretation: it takes a minimal value – the function of element number – when the researched criterion is distributed uniformly among the spatial units, and takes a maximum value when the researched criterion is concentrated in one space or in other words is in a monopol situation.

When utilising the index one has to pay attention on to compare analyses with the same element number since the minimum of the index is the function of the number of elements.

$$K_{\text{wellness}} = \sum_{i=1}^{n} \left(\frac{x_i}{\sum_{i=1}^{n} x_i} \right)^2 = 0{,}086$$

$$K_{\text{commercial}} = \sum_{i=1}^{n} \left(\frac{y_i}{\sum_{i=1}^{n} y_i} \right)^2 = 0{,}064$$

$$K_{\text{curative}} = \sum_{i=1}^{n} \left(\frac{x_i}{\sum_{i=1}^{n} x_i} \right)^2 = 0{,}161$$

X_i= spatial parameter given in a natural unit in the $_i$ spatial unit.
Y_i= spatial parameter given in a natural unit in the $_i$ spatial unit.

[3]The value supply of the concentration index: $1/n \leq K \leq 1$

During the *definition of the index* it is to be seen both at the quantitative method which already the Lorenz diagram showed that the biggest spatial concentration is at the spatial allocation of the curative hotels but none of the areas are in a monopol situation.

The practical application of the next index (Hoover index), during the research of the spatial inequalities and concentrations, is used in the most cases, since it is widely used in settlement sociology as well, when the spatial concentration or residence separation is analysed. This index shows how many percent of one of the criteria should be regrouped among the spatial units, in case of its spatial distribution should be the same as the other's parameters.[4]

Most of the times during regional and spatial researches, the spatial distribution of the important criteria in terms of the analyses are compared with the spatial distribution of population.

$$H_{wellness.} = \frac{\sum_{i=2}^{n} |x_i - f_i|}{2} = 37\%$$

$$H_{commercial.} = \frac{\sum_{i=2}^{n} |y_i - f_i|}{2} = 26\%$$

$$H_{curative.} = \frac{\sum_{i=2}^{n} |x_i - f_i|}{2} = 52\%$$

Here x_i, y_i and f_i indicates a distribution correlation number

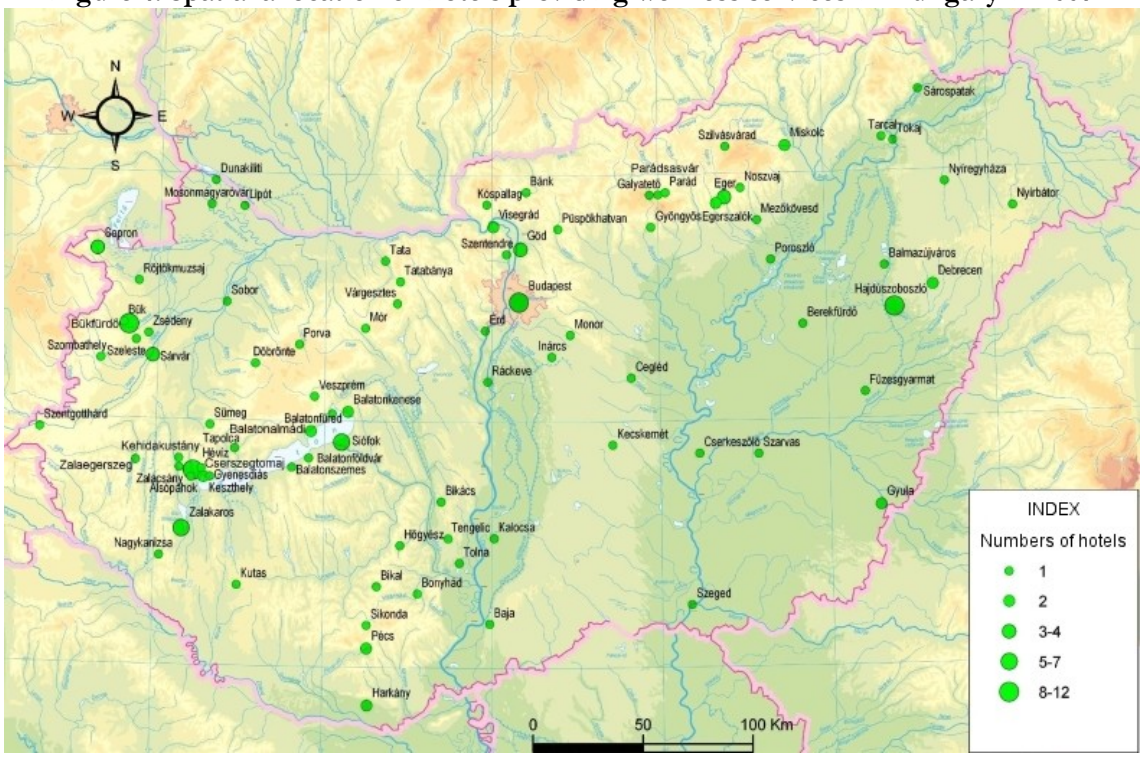
Its explanation is that 37% of the wellness hotels, 26% of the commercial accommodations and 52% of the curative hotels should be regrouped to be identical with the spatial allocation of the population, so here we can see as well that the biggest inequalities and concentration is experienced at the spatial appearance of the curative hotels.

6. Spatial allocation of wellness and curative hotels

With both the graphic imagery and the indexes as well we proved that in the spatial appearance of the domestic accommodations a concentration is experienced mostly in the case of curative hotels and wellness hotels. Our researches show a static situation not a dynamic change.

[4]The value supply of the Hoover index: $0 \leq H \leq 100$

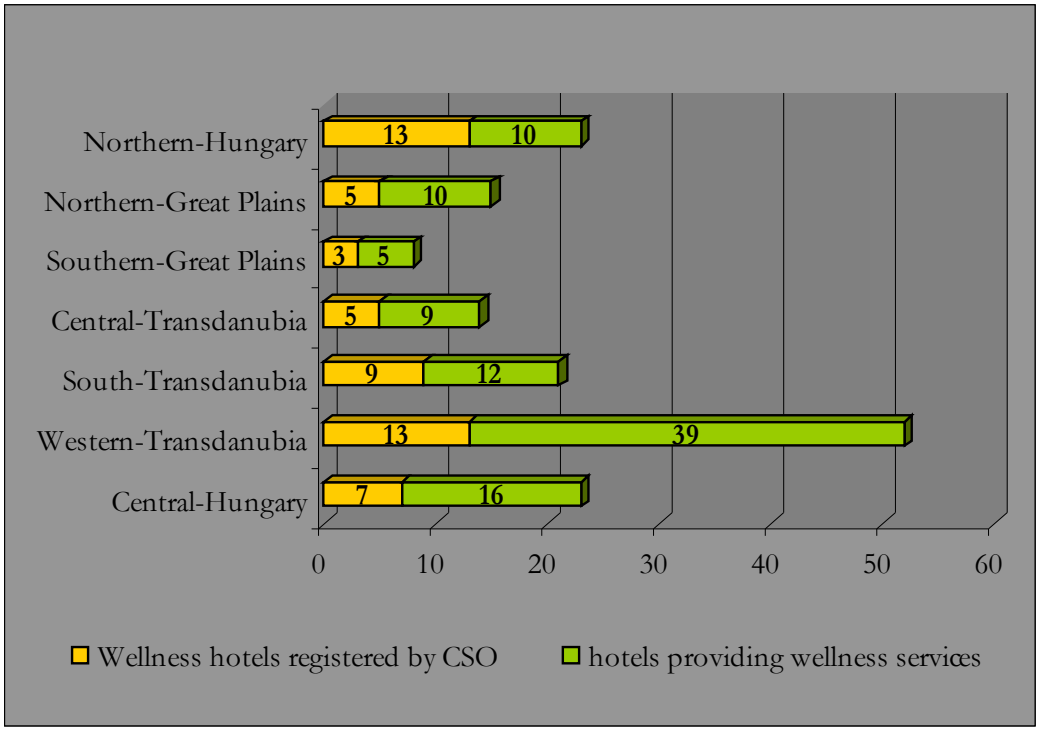
Figure 4. Spatial allocation of hotels providing wellness services in Hungary in 2007



Source: KSH/CSO and own calculation

Although the building of hotels with wellness services is characteristic in the complete country, there are significant differences to be experienced both in the case of the qualified hotels by the CSO and at the wellness profiled hotels as well. Hotels in the biggest number and receptive capacities were built in Western Transdanubia and Budapest, but there are wellness hotels with a catering capacity of at least 400 guests at almost every region of the country (with the exception of the Northern Great Plains region). The Western Transdanubian Region and Budapest contributes almost half of the domestic wellness hotels (87% of the hotels with at least 500 houseroom capacity) but South Transdanubia (mainly due to the hotel constructions around Lake Balaton in the past years) and Northern Hungary possesses a significant supply as well.

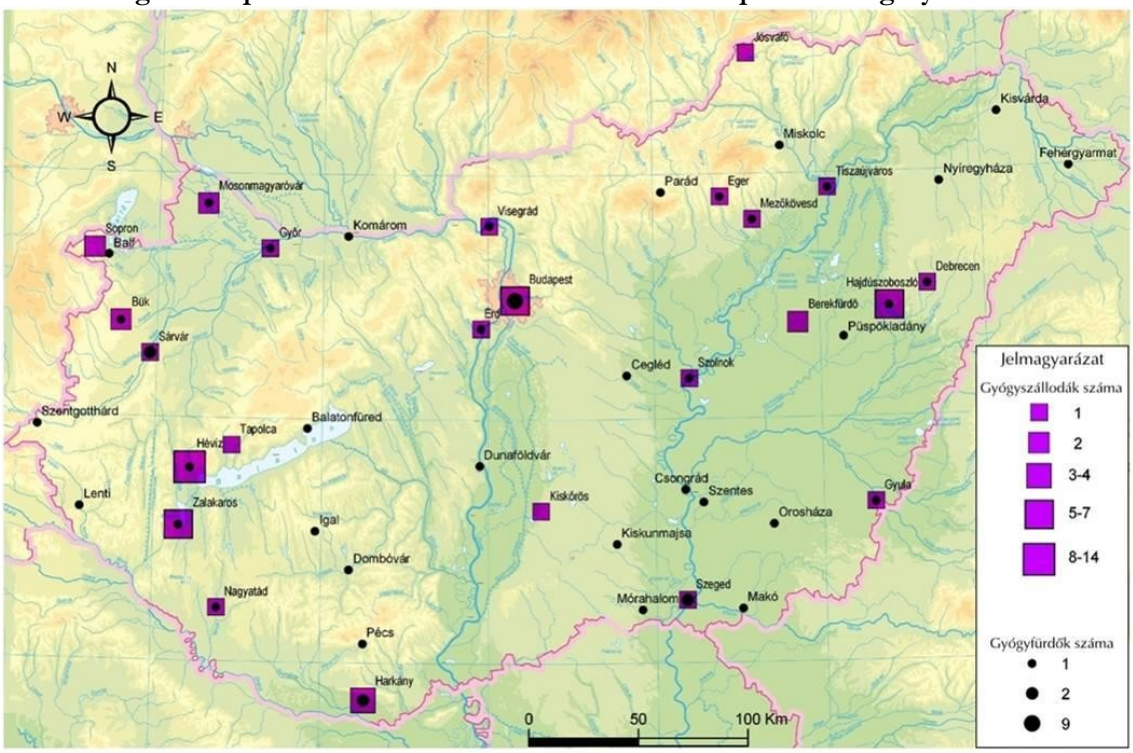
Figure 5. Spatial allocation of hotels providing wellness services in Hungary in 2007



Source: KSH/CSO and own calculation

There is a significant spatial inequality concerning the spatial allocation of the curative hotels as well. On the summer of 2007 the Western Transdanubian Region strongly exceeds from the domestic supply since almost every second curative hotel (27 houses) is situated there. Besides the Western Transdanubian Region, the Northern Great Plains (10) and Central Hungary (7) possesses a greater number of hotels as well. Most of these hotels belong to some settlements with significant curative tourism attractions. These are in Western Transdanubia, Hévíz (with 14 curative hotels) and Zalakaros (5), in the Northern Great Plains, Hajdúszoboszló (6), in the Central Hungarian Region Budapest (5) and in South Transdanubia, Harkány (3).

Figure 6. Spatial allocation of curative hotels and spas in Hungary in 2007



Source: KSH/CSO and own calculation

7. Factors influencing spatial concentration

In the followings we were analysing what kind of generating factors this spatial concentration possesses and so what settlement factors could play a role in the forming of the above introduced inequalities. The factors influencing the spatial structure of the wellness and curative hotels were analysed with a correlation matrix (*Table 5.*) To the analysis, as an explanatory factor, we involved the indexes of the natural curative waters, as the basis of health tourism, the domestic tourism's capacity and turnover measures and the indexes indicating the development level of the spatial economy and the amount of economic support. When evaluating and analysing these factors' effects one has to take into consideration that the utilised method does not provide at every case a univocal picture on the causal relations and also that it is valid to analyse quantity relations, no quality aspects are visualised there. Of course the demonstrated factors mean only a certain amount of the factors determining the spatial allocation of hotels. In the next step of the present study we wish

to broaden the analysis to the area of the different tourism attractions (natural, cultural, special) and the research of the transport situation, the basic and tourism infrastructure and the indicators on the tender activity.

Table 5. The coherence of the factors influencing the spatial concentration of wellness and curative hotels

Pearson's correlation matrix

Factors	Number of wellness hotels	Number of curative hotels	Total commercial accommodations in 2006	Number of curative spas	Qualified curative waters	Other curative factors3	Number of curative places	Total number of curative factors	Total curative factors utilised in tourism	Number of hotel capacity in 2006	Number of hotel guests in 2006	Number of hotel guest nights in 2006	GDP 2005	State support for the branch between 2001-2006
Number of wellness hotels	1	,317	**,466***	,372	,189	**,515***	**,780***	,303	**,548***	,386	,243	,271	,137	,230
Number of curative hotels	,317	1	,258	,196	,394	**,621****	,269	**,518***	**,463***	,327	,243	,336	,122	**,472***
Total commercial accommodations in 2006	**,466***	,258	1	,257	,042	,354	-,516	,127	,378	,261	-,013	,027	-,125	,216
Number of curative spas	,372	,196	,257	1	,419	,173	,115	,430	**,872****	**,655****	**,693****	**,683****	**,667****	,250
Qualified curative waters	,189	,394	,042	,419	1	,178	,225	**,970****	,418	,268	,319	,335	,307	,310
Other curative factors3	**,515***	**,621****	,354	,173	,178	1	**,796***	,414	**,633****	,129	,063	,123	-,060	,379
Number of curative places	**,780***	,269	-,516	,115	,225	**,796***	1	,419	**,771***	,113	,319	,312	-,292	-,004
Total number of curative factors	,303	**,518***	,127	,430	**,970****	,414	,419	1	**,544***	,280	,311	,340	,269	,381
Total curative factors utilised in tourism	**,548***	**,463***	,378	**,872****	,418	**,633****	**,771***	**,544***	1	**,579****	**,576****	**,598****	**,495***	,385
Number of hotel capacity in 2006	,386	,327	,261	**,655****	,268	,129	,113	,280	**,579****	1	**,922****	**,943****	**,815****	,096
Number of hotel guests in 2006	,243	,243	-,013	**,693****	,319	,063	,319	,311	**,576****	**,922****	1	**,992****	**,960****	,041
Number of hotel guest nights in 2006	,271	,336	,027	**,683****	,335	,123	,312	,340	**,598****	**,943****	**,992****	1	**,928****	,110
GDP 2005	,137	,122	-,125	**,667****	,307	-,060	-,292	,269	**,495***	**,815****	**,960****	**,928****	1	-,035
State support for the branch between 2001-2006	,230	**,472***	,216	,250	,310	-,004	,379	,381	,385	,096	,041	,110	-,035	1

* correlation is significant besides a 0,05 level, **correlation is significant besides a 0,05 level

The values highlighted with bold letters indicate a significant correspondence

[1]Curative spas of the Országos Gyógyhelyi és Gyógyfürdőügyi Főigazgatóság/ National Directorate of Curative Places and Spas (OGYFI/NDCPS) registry

[2]Curative waters of the OGYFI registry

[3]Other curative factors of the OGYFI registry: curative caves, curative mud, curative climate, curative gas

[4]Curative places of the OGYFI registry

[5]Vurative spas and other curative factors of the OGYFI registry

[6] Source: GKM

With the spatial allocation of wellness hotels, among the researched factors, the most tense relation is with the spatial allocation of curative factors based on non-curative water (primarily climatic curative places) and the curative factors with at least a national level of attraction already utilised in domestic tourism. Besides the natural curative factors, providing the basis for domestic health tourism, the spatial allocation of commercial accommodations provides moderately significant relations as well. It is also important to mention that the spatial allocation of wellness hotels are not influenced with either the differences among the turnover and carrying capacity of the domestic tourism, or the development differences among the counties. Oppositely of what we believed in our proceeding presumption, after the millenary, the significant concentration of the state support, with the aim of broadening the domestic health tourism supply, could not significantly influence the spatial structure of wellness hotels.

The spatial allocation of curative hotels, proceeding from their functioning features, is strongly influenced by the allocation of domestic curative factors out of which the presence of the other factors besides curative water (curative mud, curative caves or gas) seems to be a highly important settling feature. Beyond these factors, the spatial structure of the curative hotels were basically influenced by the spatial allocation of the state support from 2001-2005. Similar to the wellness hotels, in the case of the curative hotels as well there is no significant role of the tourism performance and capacity and the general development factors.

The spatial structure of the curative spas, providing a very important element of the domestic health tourism supply, show a strong correlation with the allocation of tourism capacity and turnover and the regional differences of the GDP. In this causal relation system the curative spas appear as rather an interpreting factor, but opposite direction or possible third factors can not be excluded either.

8. Summary

The advantageous formation of the health tourism statistics show the proper directions of the latter years' developments, due to which for the forthcoming planning periods this branch will play a more significant role in the planning documentations. Apart from the social and economic processes this procedure is supported by the facts that the increase of spare time, discretional income and educational level is characteristic to Hungary as well, which strongly broadens the target groups of tourism and within that health tourism. Recognising the effectiveness of prevention

activities and its social acceptance can further on promote the development of certain branches of health tourism with a special attention to the disadvantageous health status of the domestic population.

The very important role of health tourism investments in regional development is confirmed by the analysis of the economic and social effects of the past decades' investments. Due to the hotel and spa building and recovery activity of this era, the tourism income grew in the related settlements, the labour market situation improved and in many cases the basic and tourism infrastructure significantly developed as well (MUNDRUCZÓ 2005). It can be well seen from the analysis demonstrated in this paper that these investments were carried out besides significant spatial differences. Thus those regions were formed which utilise their health tourism potentials with a significant turnover (Western Transdanubia, Budapest) and also areas with a lower utilisation rate of their capabilities and resources (South Transdanubia, South Great Plains). The fact is also remarkable that, during our researches, the building of either wellness or curative hotels do not follow the spatial development indexes. Since almost all of the counties of Hungary disposes of utilisable natural healing factors (GELLAI 2004), or unique natural, cultural or other attractions, the development of health tourism can be an important and successful area of the regional development activities – similar to Western European examples – of less developed areas. For this, the practical realisation of cluster oriented reasoning would be indispensable, also the forming of a reconsidered market segmentation (taking into consideration the target groups of wellness) and the more effective and fair distribution of development sources paying respect to the interests of the service providers as well.

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