

THE ROLE OF AVIATION IN THE LIFE OF SPA CITIES LOCATED IN ZALA COUNTY

Ákos Pintér¹, Ádám Köbli²

¹University of Pannonia, Georgikon Faculty, Keszthely, Hungary

²Edutus University, Budapest, Hungary

pa@georgikon.hu

kobli.adam@edutus.hu

Abstract

Tourism and transportation are sectors that are inseparable from many aspects. The paper focuses on the detection of correlations between the spa towns of Zala County and the international airport of the region. The spas of the county, offering services at different levels, are very popular with international tourists, for whom an aspect of selected importance is accessibility, when choosing destination. The spas of Zala are accessible, in addition to road, by air, due to Hévíz-Balaton International Airport operating in Sármellék. The authors in their paper examine the volume of guests – approximately 75% of whom are foreigners – in the major four-star hotels of Hévíz, a resort of international recognition, and the changes in the volume of guests using the services of the airport. The impressive airport development announced for Sármellék in the recent years have not been implemented yet, no significant increase can be seen in the number of air passengers. The impact of the definitely busier airports of the wider region – Budapest, Vienna and Zagreb – can be evidently felt in the health tourism of the region. The further development and sustainable operation of the Hévíz-Balaton

International Airport are a must, as foreign tourists play a very important role in the tourism of two spa towns with international significance: Hévíz and Zalakaros.

Keywords: spa, tourist attraction, aviation, Zala County

Összefoglalás

A turizmus és a közlekedés sok szempontból egymástól elválaszthatatlan ágazatok. Tanulmányunkban a Zala megyei fürdővárosok és a régió nemzetközi repülőtere közötti összefüggések keresésére koncentráltunk. A megye különböző szintű szolgáltatásokat nyújtó fürdőhelyei nagyon népszerűek a nemzetközi turisták körében, akiknek a cél desztináció kiválasztásánál kiemelt szempont a megközelíthetőség. A zalai fürdők a közút mellett légi úton is elérhetőek, köszönhetően a sármelléki Hévíz-Balaton nemzetközi repülőtérnek is. Munkánkban a nemzetközi híré Hévíz legjelentősebb négycsillagos szállodáinak – melyek vendégköre kb. 75%-ban külföldi – idegenfogalmi adatait, valamint a repülőtér légi utasforgalmának változásait vizsgáltuk meg. Megállapítható, hogy a térség idegenforgalmában, az utóbbi években jelentős szereppel bíró orosz vendégkör (Budapestről) és az izraeli vendégek döntő része (Bécsből) a légi közlekedést választva érkezik hazánkba, azonban nem közvetlenül Sármellékre. A német vendégkör negyede viszont ide érkezik, két jelentős utazási irodának köszönhetően. Az utóbbi évek hangzatos repülőtér fejlesztései Sármelléken ez idáig nem valósultak meg, a légi utaslétszám alakulásában szignifikáns változás nem tapasztalható. A környék lényegesen nagyobb spektrumú nemzetközi repülőtereinek súlya – Budapest, Bécs, Zágráb – a térség beutazó gyógyturizmusában markánsan érzékelhető. A repülőtér további fejlesztése és fenntartható üzemeltetése mindenképp szükséges, hiszen a két nemzetközi jelentőségű fürdőváros, Hévíz és Zalakaros turizmusában is fontos szerepet töltenek be a

külföldi turisták. Egy stabilan működő, korszerű infrastruktúrával rendelkező repülőtér óriási versenyelőnyt biztosíthat a zalai fürdőknek, és a hatásai az egész megye turizmusát kedvezően befolyásolhatják.

Kulcsszavak: gyógyfürdő, turisztikai látványosság, légi közlekedés, Zala megye

Introduction

Zala County possesses outstanding tourism potential. The diverse supply is based on valuable touristic traditions. One of the major products is tourism of Lake Balaton in the hinterland of Keszthely, which generates significant numbers of tourist arrivals especially in the summer months, attracting both Hungarian and international guests. Important attractions are city and cultural tourism concentrated in the major cities (Zalaegerszeg, Nagykanizsa, Keszthely), ecotourism in the continuously developing landscapes of the Little Balaton reserve, and rural or mild tourism more and more popular in the Göcsej areas. As regards the attractions of Zala County, however, it is clearly the spa towns that are dominant, where guests are treated with high quality health tourism services.

The spas of Zala include medical resorts with international significance and long traditions, such as Hévíz or Zalakaros; spas continuously developing, with national level recognition, like Kehidakustány and Lenti; and also quality spas serving the population of the respective region and the neighbouring areas in the first place. Due to health tourism, successful spa towns dispose of significant revenues and resources, giving them a considerable economic advantage, and so the attraction of the largest possible pool of tourists is their vested interest. Hungarian health tourism is very successful among the solvent tourists of Western Europe

(Smith and Puczkó, 2010), also, the recent decade saw the appearance of masses of Russian tourists, which is unique in Hungary (Köbli, 2015).

The number one attraction for international markets, in addition to the quality of the medical water and the level of services, is the issue of accessibility. A significant role in this can be played by the third largest airport of Hungary, Hévíz-Balaton International Airport that can be found in Sármellék. The airport can promote the inclusion of new clientele in the health tourism sector of Zala County; its implementation is not an easy task, however. The huge potential lying in the airport is in vain as long as the local experts are continuously struggling with problems during implementation, as they have done in the last decades. The stable operation of the airport, anyway, would be a sound basis among other things for the operation of health tourism in Zala County.

Materials and methods

The aim of this paper is the detailed analysis of the role of the airport, with special regard to the demonstration of the impacts on the clientele of the spa towns of Zala County. The significance of the spas of Zala is briefly discussed, and the history of the airport, rich in turning points, and its present state are introduced. The recent impact of the airport on the spa towns is demonstrated by the example of the most popular medical resort, Hévíz, where guest surveys in the hotels were used to assess the proportions of domestic and international guests, the range of countries generating the largest numbers of guests, and the share of international tourists arriving by air. Also, the travel habits of these guests and the deviations thereof from other tourists were looked at. The findings are compared to each other in an Excel table, and are evaluated. For this purpose interviews were made in three high quality four-star hotels of Hévíz:

in Ensana Thermal Hévíz, Ensana Thermal Aqua and Hotel Európa Fit. These hotels are the largest accommodations used by international tourists arriving at Hévíz, interested in the success of the airport also in the long run. The answer was sought in the case of each accommodation to the questions above. The findings of the interviews assist the understanding of the recent role of the airport and its future development potential in the tourism sector of the county, and also the exploration of the possibilities of close cooperation of the two sectors: health tourism and aviation.

Results

Health tourism in Zala County

Nowadays those settlements can be considered as spa cities successful in the long run that, with their former and recent developments, have acquired a significant domestic and international clientele by now (Jónás-Berki et al., 2014). For sick patients the possibility of healing is the primary motivation, for healthy ones it is prevention; both generate a constant demand. In addition, the growing popularity of health-conscious way of life, the penetration of civilisation diseases and the more widespread use of alternative medicine will all increase this demand (Connell 2013).

The main locations of the excellent medical tourism endowments of Hungary and the quality services built thereon are the continuously developing spa cities. Owing to different spa developments, a very large number of settlements possess spas and the related touristic facilities now, but in the view of Michalkó and Rátz (2011) there are few spa cities in the classic sense of the word in Hungary, as the dominance of medical tourism has essential, complex municipal impacts in a few settlements, only. The spas of Zala have excellent endowments, and

consequently they have leading positions in the supply of health tourism in Hungary. The unique composition of waters, the traditions of many decades – centuries in Hévíz –, the favourable geographical position in West Hungary give the Zala spas a basis on which continuous development is possible. Local developments lead to the improvement of the quality of services, and of the general living standards and quality of life, which is of outstanding importance for local society, besides guests. Urban and tourism developments, the new services and infrastructure investments have a combined and multiplier effect.

The Hungarian National Health Tourism Development Strategy (OES in Hungarian) categorised Hungarian spa facilities and the settlements giving home to spas at three levels. In 385 settlements of Hungary there are spas of some quality, of which 187 facilities, suitable for the implementation of development objectives, were categorised by researchers. Three categories were defined (OES 2007):

- 0 Spa resorts of international significance, historical and monument spas, medical places
- 0 Touristic service providers of national and regional significance
- 0 Spas of local significance

Figure 1 demonstrates the location of Zala County settlements with spas of various qualities, and the airports of the county. The county has excellent geothermal endowments, as a consequence of which spa developments are continuously undertaken. Even spas of local significance have a stable clientele, in many cases attracting guests from the neighbouring countries as well (from Austria and Slovenia), but the bulk of the clientele is made by visitors from Zala and the neighbouring counties. The spas in Bázakerettye and Lovászi make the tourism supply of the region more diverse, but they play no role in international tourism arriving at the airports.

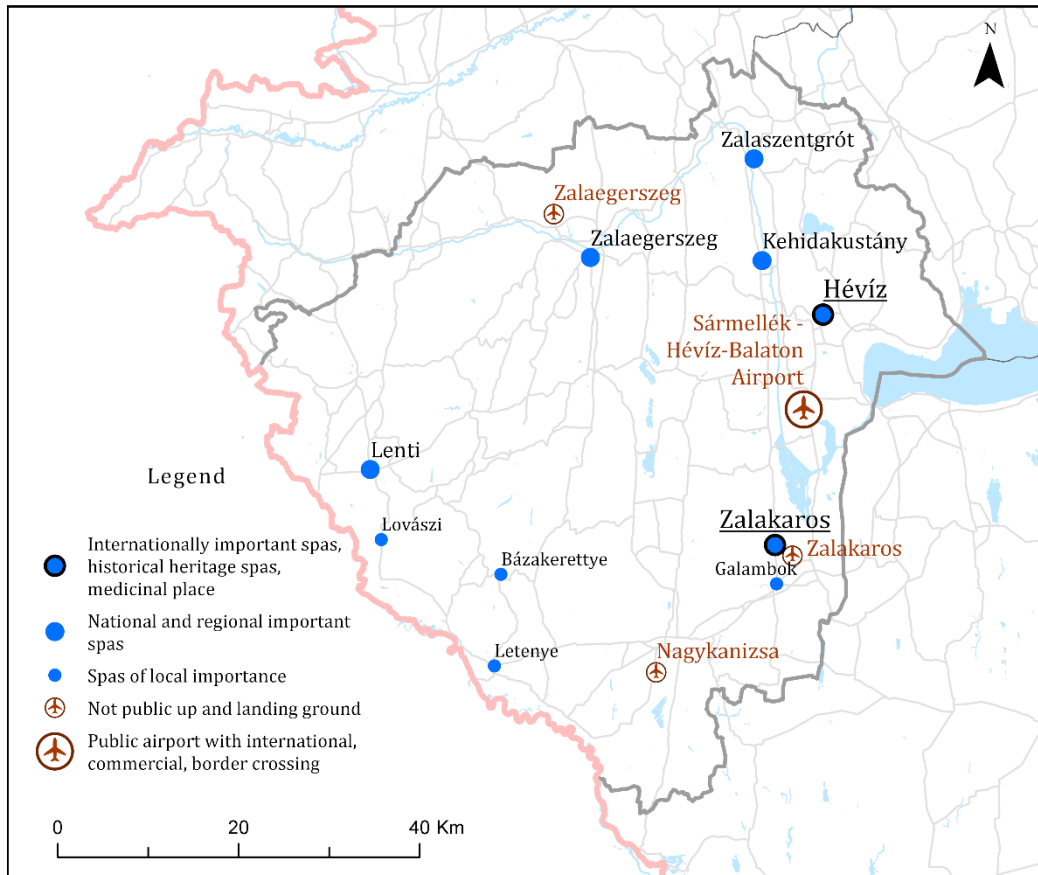


Figure 1: Spas and airports located in Zala County

Source: Edited by Morva and Köbli

Spas with national attraction too have a growing number of guests, the spa developments of the so-called Széchenyi Plan allowed investments of considerable scale, attracting international clientele to the spas (Mundruczó and Szennyessy, 2005). Kehidakustány and Lenti too have become important actors on the market of the county, attracting guests, especially those in search of wellness services, from all over Hungary due to the effective marketing activity. Foreign tourists visiting these spas are usually Austrian, German and Croatian tourists travelling in their own organisation, still, the majority of the guests of the spas are Hungarians. The airport of Sármellék has considerable impact on the lives of the international spas, mainly, and by the multiplier effects of tourism it can have a positive influence on the tourism sector of

Zala County as a whole. There are two spas of international recognition in Zala: Hévíz and Zalakaros.

The foundation of tourism in Hévíz is the world famous and unique Hévíz Lake and the medical tourism services built thereon. The surface area of the lake is 44,400 square metres, making it the largest natural, biologically active hot water lake of the world. The medical water erupts from the crater well at a depth of 38 metres, its average temperature in summer is 33-35 °C, and does not sink below 23 °C even in wintertime, so it is suitable for open air bathing all year long (UDC of Hévíz, 2015). The sulphuric water contains alkaline hydrogen-carbonate and is slightly radioactive, especially suitable for healing different rheumatic, locomotory, muscular and nervous system diseases and gynaecological disorders. Hévíz has long been the spa town of Hungary with the highest quality and the most diverse range of services, an outstanding venue of international tourism in the rural Hungary. The dominant part of the clientele is from the traditional German and Austrian market, supplemented in recent years by Russian and Ukrainian tourists showing a great interest in health tourism in the recent decades. Also, guest numbers from the Czech Republic, Israel and Switzerland are considerable.

Zalakaros is one of the least populated towns in Hungary for the time being, where, however, both tourists and local inhabitants have access to very high quality of life, due to the achievements of health tourism. Accommodation and attraction developments have been continuously implemented in the small spa town of Zala, making it the fourth most visited classical spa destination of Hungary now. Although the significance of international tourism is increasing year by year, the basic clientele is still the Hungarian guests.

These two settlements evidently have a vested interest in the as successful operation of the airport as possible, and the most possible effective access to foreign markets. Figure 2 shows

the numbers of guest nights in the two Zala County spa towns of international significance, taking both domestic and international guests into consideration.

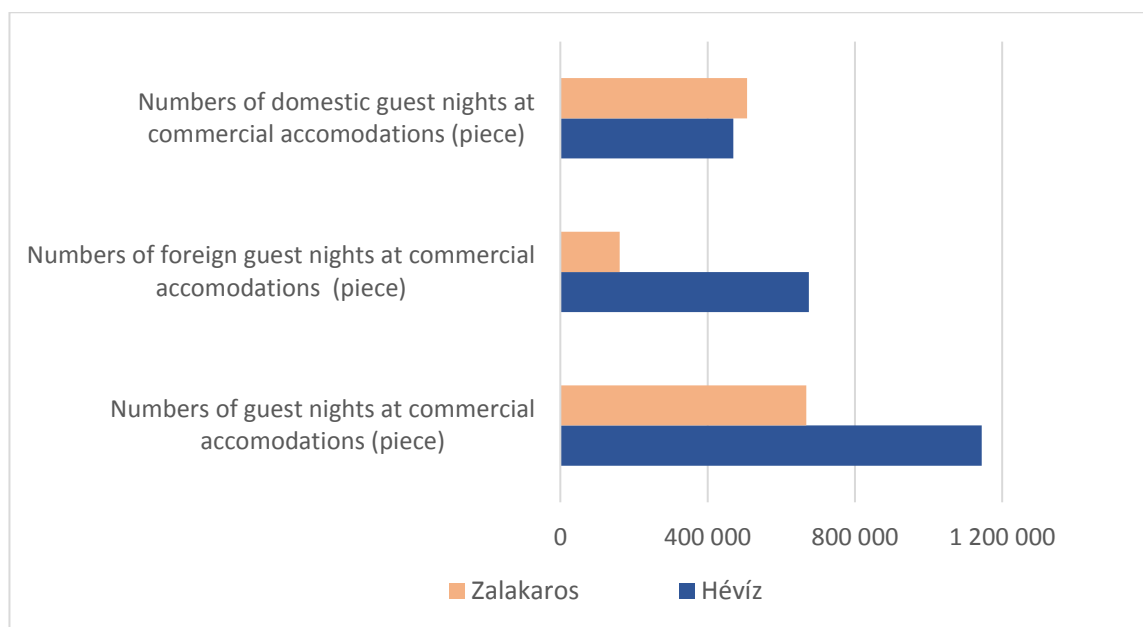


Figure 2: Numbers of guest nights spent in Zalakaros and Hévíz, at commercial accommodations 2019

Source: Database of HCSO, 2020.

The close connection between tourism and transportation is evident: in order to reach a tourism destination and visit an attraction, one must travel to the location (Jászberényi and Pálfalvi, 2009). There is not tourism without transportation; on the other hand, several tools and means of transportation would also be devoid of purpose without tourism. In the acceleration of transportation and the birth of globalisation, from the aspect of tourism it was the mass use of aircrafts that made the real breakthrough. As a result of this, European and overseas distances shrank; the majority of destinations are now much faster and more comfortable to reach (Pintér, 2013). Further touristic effects of Hungarian airports have been pointed out in the previous papers of other authors (Jászberényi and Ásványi, 2013, 2016).

Hungary has a total of 5 airports that have managed international air passenger traffic, at least temporarily, in recent years (Tiner, 2011). By the data of the websites of airports in

Hungary, the order in the volume of air passenger traffic in 2018 was as follows: Budapest (14.8 million persons), Debrecen (376 thousand persons) Győr-Pér (20 thousand persons), Sármellék (11.5 thousand persons), Pécs-Pogány (5 thousand persons).

Hévíz-Balaton International Airport

From the aspect of tourism the most important airport of the region is evidently Hévíz-Balaton (before 2012: FlyBalaton) Airport between Sármellék and Zalavár municipalities. The originally military airport built in 1953 has operated in the service of civil aviation since 1991. The runway, made of good quality basalt concrete, has a length of 2,500 metres and a width of 60 metres. The airport is perfectly suited for the reception of aircrafts with 150-200 passenger capacity.

The operation of the airport showed only a slow progress during 1991-2005. The reason for this was the lack of runway lights and modern air traffic control equipment, due to which aviation was only possible in daylight, in good visibility conditions (Pintér, 2009; Pintér and Makai, 2013). Also, there were no foreign investors who could make adequate profit from the operation of the airport. It is well known that the profit from the operation of regional airports can only be realised after several years (Zóka, 2006). The ownerships of the airport were settled by the turn of the millennium, and the real development started in 2004 when the management of the airport was done by an Irish-Hungarian company, Cape Clear Aviation. Low-cost airlines showed up, a new, up-to-date passenger terminal, restaurant and parking place were built, and so the interest in the airport continuously grew. The operator of the airport at that time, in order to cover the high costs – especially the expense of the operation of the air control and passenger safety system – made a marketing contract in 2007 and 2008 with the major commercial accommodations in the municipalities of the region receiving larger numbers of guests; these

were larger hotels in Hévíz, Keszthely, Zalakaros, Kehida and Tapolca (Lukács, 2009). The airport had the largest number of passengers in 2008, serving almost 110,000 thousands passengers that year. The most popular flight was the one to London (Stansted), followed by the German destination Frankfurt am Main (Hahn). Besides these cities, important airports with considerable passenger numbers to FlyBalaton were those of Düsseldorf, Berlin, Hamburg, Cologne, Zurich and Amsterdam (Pintér, 2009). However, the majority of low-cost airlines present at the airport – of which Ryanair carried the largest number of passengers – left by the end of 2008 and the airport had to be closed in the winter (Pintér, 2014).

The airport has been operated since March 2012 by Hévíz-Balaton Airport Ltd., 100% owned by the municipality of Hévíz. No significant increase in the number of air passengers has occurred since 2009 to date, according to statistics, the number of passengers is between 15,000 and 25,000 annually. In 2019 there was even a decline (6,620 persons), due to the five-week closedown in summer. A major increase in the number of air passengers cannot be expected in 2020, either, for the same reason, and the situation is further exacerbated by the global recession of tourism owing to the corona virus pandemics. The plans calculate with an improvement after 2021 (Hévíz-Balaton airport, verbal information).

The majority of passengers flying to Hévíz-Balaton airport are guests from Germany. The airport has connections to 7 German cities now (Frankfurt am Main, Berlin, Düsseldorf, Dresden, Hamburg, Leipzig, Erfurt) in the period from spring to autumn, with a weekly frequency (www.hevizairport.hu). The air passengers arriving here, dominantly from the senior generation, are guests interested in medical tourism for 2-3 weeks in Hévíz and the surrounding settlements.

Two German travel agencies organise the air transportation of spa guests to the region: the company Mutsch Ungarn Reisen transports passengers from Berlin, Düsseldorf, Frankfurt

and Hamburg, another one called Salamon Reisen from Dresden, Erfurt and Leipzig to the Hévíz-Balaton international airport at Sármellék, from spring to autumn. As regards Salamon Reisen, the latter three German cities also have seasonal air connection to the International Airport of Debrecen (www.termalonline.hu). The number of air passengers at Hévíz-Balaton airport in recent years can be seen in Figure 3.

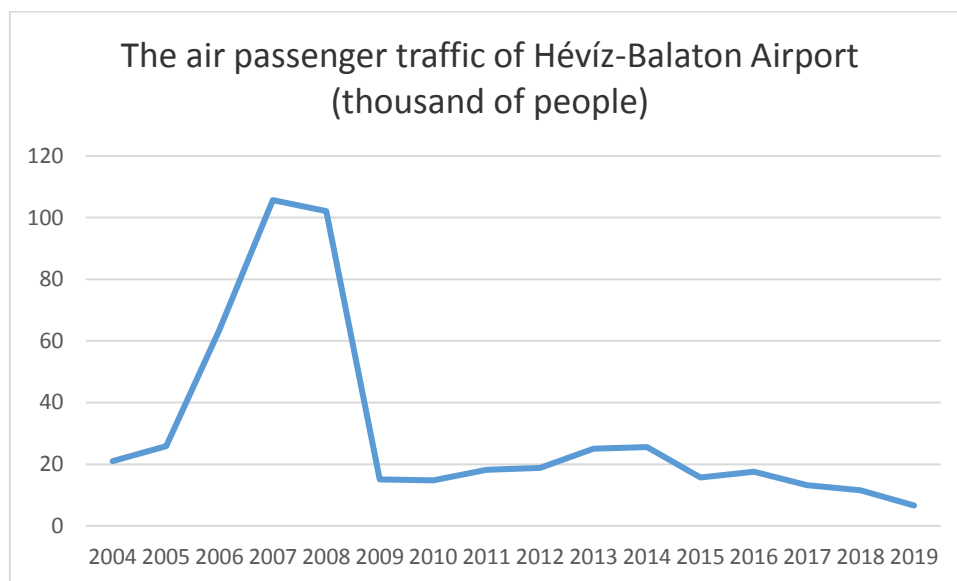


Figure 3: Number of air passengers at Hévíz-Balaton Airport

Source: Edited by Pintér, Á., using the statistical database of the Hévíz-Balaton airport (2020).

Findings of the hotel survey

Our research was focused on the four-star medical hotels of Hévíz, as these are the accommodations most popular with the foreign tourists arriving at the region. We assessed the characteristic features of the clientele in three selected locations – Ensana Thermal Hévíz, Ensana Thermal Aqua, Hotel Európa Fit – in connection with air transportation.

The findings reveal that the largest accommodations of Hévíz operate with 75-80% capacity utilisation on an annual average. Of course, there are some times with higher capacity utilisation (holiday periods, long weekends, summer months), but, due to the peculiarity of

health tourism, i.e. that medical water and the related services are available all year long, by and large to the same extent, seasonality is much less typical than at other touristic attractions. As for their capacity, the three hotels are quite similar to each other in this respect (210-234 rooms) – they are among the largest capacity accommodations in the whole of Zala County, anyway.

The breakdowns of domestic and foreign guests are also almost the same in all three hotels. On the average, 74 per cent of tourists are from abroad annually, leaving 26% to the domestic market. Of course, international guests participate in longer holidays and treatments and so their average duration of stay is significantly longer. A foreign guest spends 6 days on the average in a medical hotel of Hévíz – among them the longest stays, approximately 10 days, are typical of the Russian, Ukrainian and Israeli guests –, while the duration of stay of a Hungarian guest is exactly half of this, 3 days. Hungarians prefer shorter, wellness motivated travels, with a very large demand at the times of holidays and long weekends. A basic trend in today's tourism is the more frequent travels of guests, but for shorter periods of 2 to 4 days. Health tourism is perfect for such short sessions of a few days. Hungarian travellers are young couples and families with small children in higher proportions; they are more open to programmes and experiences. Almost one-third of international guests arrive at this macro-region – especially Budapest and Vienna – by air, Hévíz-Balaton airport for the time being only serves the travels of a part of the German health tourists to this area.

As regards foreign guests, totally different travel habits and target groups can be observed. In this group a typical guest is older and wants to be healed, they will usually use the services and treatments of the Hévízi Tófürdő (Hévíz Lake Spa). The breakdown of international guests at the three accommodations shows very considerable similarities and trends. The two main countries of origin are Germany and Russia. They are supplemented by guests from other countries, in smaller numbers: other German speaking countries – Austria

and Switzerland –, Israel, the Ukraine and Slovakia; and there are the one-day Chinese tourists. Foreign guests are typically seniors, mainly from the German speaking countries; they often arrive in groups, and stay for a week or two. What is determining for them is the attractive environment of the towns, the professionalism and kindness of the staff, and the price/value ratio of services. Germans were the most dominant clientele in the town for decades, and local service providers always paid special attention to meeting the demands of this solvent target group. Presently the generations aged over 60, often 70 arrive from Germany, for whom accessibility and the speed of that are of utmost importance. According to statistics, approximately one quarter of the German guests use Hévíz-Balaton airport as air passengers, from where they use shuttle service to get to Hévíz.

The huge increase in the number of Russian guests is a very interesting phenomenon. In the early 2010s both Hévíz and the tourism management of Hungary recognised the giant potential in the solvent Russian market. In Russia health tourism has significant traditions, and parallel the strengthening of the economy of Russia it seemed to be a logical conclusion that Hévíz, the highest quality and most prestigious Hungarian spa town, will be an attractive environment for them. In Hungary it is still only Budapest and Hévíz where we find Russian guests in very high numbers. The boom of the Russian clientele – most of whom arrive at Budapest by air and then use a shuttle service to travel to the area – was tremendous, as a consequence of which they totally took over the position of the main country of origin by 2015. The Russian-Ukrainian conflict and the crisis of the Russian Rouble caused a sudden drop in their number. The market has calmed down and stabilised by now (right until the COVID pandemics that burst out in early 2020 and has changed everything fundamentally), and now the number of Russian guests is balanced year after year, approaching the number of German guests. The dominance of German or Russian guests varies hotel by hotel, but the two clienteles

can get along with each other well now, after the initial hardships. As opposed to the Germans, from Russia it is typically younger guests, aged 30-50 often with their families that arrive, supplemented with the classic senior health tourists.

Conclusion

The spas of Zala County, offering services at different levels, are very popular with the international guests. When selecting the destination, accessibility is an aspect of selected importance. The spas of Zala are accessible not only by road but also by air, owing to Hévíz-Balaton International Airport at Sármellék. The busiest period of the airport, the largest volumes of guests were typical in the years from 2006 to 2008. The turnover of guests has stabilised at a low level – 15 thousand to 25 thousand air passengers annually – since then, due to the drastic decline, for several reasons. We can see that the dominant part of the Russian guests, making a significant proportion of clientele of the region in recent years, and also the guests from Israel arrive at Hungary by air, although not directly at Sármellék (they prefer Budapest and Vienna, respectively). A quarter of the German guests, however, arrive here, owing to two major travel agencies. In the transportation of air passengers from more distant destinations, the larger airports, especially in the neighbouring capital cities, play a dominant role. The paper highlights the fact that for senior medical tourists comfort and the time factor are of utmost significance. A financially stable airport with state-of-the-art infrastructure can be a huge competitive advantage for the spas of Zala County, and its operation may have a favourable impact on the tourism of the whole of the county. The economy of the region may be in a disadvantageous position in comparison to its competitors, if the underutilisation of the airport capacities continues.

References

- Connell, J. 2013. Contemporary medical tourism: Conceptualisation, culture and commodification. *Tourism Management* **34**. 1–13.
- Jászberényi, M., Ásványi, K. 2013. Examination of the correlations of the development of regional airports and the development of regions, from a tourism perspective (in Hungarian). In: Buday-Sántha, A., Danka, S., Komlósi, É. (eds.): Development of regions 201/3: Closing conference of the project TÁMOP-4.2.1.B-10/2/KONV-2010-0002 called “Development of regions”, Pécs, 23-24 May, Pécs, Hungary; Faculty of Business and Economics of the University of (FBE UP), 2013. 317-327.
- Jászberényi, M., Ásványi, K. 2016. The role of a regional airport in the inbound tourism: The case of Sármellék and Hévíz. *Vestnik Apk Stavropolya Agricultural Bulletin of Stavropol Region*. **1(21)/1** Supplement 62-64.
- Jászberényi, M., Pálfalvi, J. 2009. International Transportation and Tourism (in Hungarian). Bologna – Tankönyvsorozat, Aula Kiadó
- Jónás-Berki, M., Csapó, J., Pálfi, A., Aubert, A. 2014. A Market and Spatial Perspective of Health Tourism Destinations: The Hungarian Experience. *International Journal of Tourism Research*. **17/6**. 602-612.
- Köbli, Á. 2015. Russian tourists in Hévíz: Following the way of Karlovy Vary? *Acta Geographica Universitatis Comenianae*. **59/1**. 35-51.
- Lukács, F. 2009. Fly Balaton: What to do next? (in Hungarian). Monitor, Közéleti lap. 6-7.
- Michalkó, G., Rátz, T. 2011. Health Tourism and Quality of Life in Hungary: Chapters on the correlations of travel and wellbeing in Hungary (in Hungarian). Budapest, MTA Földrajztudományi Kutatóintézet.

Mundruczó, Gy., Szennyessy, J. 2005. Economic impacts of the health tourism investments of the Széchenyi Plan (in Hungarian). In: Turizmus Bulletin, 9/3. 30-41.

Pintér, Á. 2009. The role of regional airports in the tourism of West Transdanubia (in Hungarian). In: Modern Geográfia, Pécs

Pintér, Á. 2013. Examination of the correlations of air transportation and tourism in the Visegrád Countries (in Hungarian). In: Józsa, Klára; Nagy, Gyula; Dudás, Renáta (eds.) Geográfus Doktoranduszok XIII. Országos Konferenciája, Szeged, Magyarország: SZTE Természettudományi és Informatikai Kar Gazdaság- és Társadalomföldrajz Tanszék

Pintér, Á., Makai, K. 2013. The tourism importance in the surrounding of the Hévíz-Balaton Airport region. *Georgikon for Agriculture*. **17/2**. 1-19.

Pintér, Á. 2014. New trends of aviation in the Visegrád Countries, with special regard to tourism (in Hungarian). PhD dissertation, Pécs

Smith, M., Puczkó, L. 2010. Health tourism: medicine, wellness, holism (in Hungarian). Akadémiai Kiadó, Budapest.

Tiner, T. 2011. Airports, 2009 (in Hungarian). In: Magyarország térképekben/Hungary in maps. Kocsis K., Schweitzer F. (eds.), MTA Földrajztudományi Kutatóintézet, Budapest

Urban Development Concept of Hévíz, 2015 (in Hungarian), HÜBNER Tervező Kft.

Zóka, I. 2006. The present and future of FlyBalaton Airport in the region's economic development (in Hungarian). Manuscript

<https://hevizairport.hu/hu/menetrend/>

<https://termalonline.hu/termal-hirek/heviz-aprilisban-indul-a-repulos-szezon>

<http://statinfo.ksh.hu/Statinfo/haDetails.jsp?fbclid=IwA> (Database of HCSO, 2020)