Theses of the Doctoral dissertation (PhD)

ANALYSIS OF THE EFFECTS OF DYNAMIC PRICING IN HOTEL INDUSTRY

FAZEKAS Lajos Róbert

Consultant:
Prof. Dr. PETŐ Károly
professor

UNIVERSITY OF DEBRECEN
IHRIG Károly Doctoral School of Management and Business

Debrecen, 2023

1. BACKGROUND AND AIMS OF THE RESEARCH AND THE INTRODUCTION OF RESEARCH HYPOTHESES

I have been working in the field of tourism and hotel industry for more than 25 years, and for the majority of this period, for over 20 years, I have been a manager. In this way, I experienced maybe the most hectic and most extreme two decades of tourism. I could experience a global economic crisis (2008-2010), a horrible act of terrorism (9/11), and the effects and economic phenomena of a blooming close decade. At the end of this period, two events happened for which the tourism sector, the good and applied mechanisms and even the experts were not prepared. A pandemic (COVID-19) and the war in our neighbourhood, which does not have a global effect in terms of geography but it does in terms of economy, made the actors of tourism face tasks and economic phenomena where no old colleagues could teach or answer the methods to apply, and there was no solution in any textbook or scientific research. Even the boom of the IT sector providing mind-blowing perspectives and opportunities, which significantly supported hotel industry (as well), did not make it possible to get algorithms to provide the solution. To take it simple, the software used in this field were not prepared for these phenomena.

During this period, as a financial manager, I was continuously monitoring the changes of room prices making up the largest proportion of the income of a hotel, the related trends, the constant expansion of the influencing factors and the weight of their effects. It soon became clear for me that sooner or later every hotel must switch to dynamic pricing the basis of which is ensured nowadays by relatively cheap IT devices. The most important element of these systems is the booking engines which generate prices based on the accumulated input data. During the continuous development of our self-developed booking engine, in addition to the input data and influencing factors obtained from my practical experience, I endeavoured to search for further factors influencing pricing and the practical application of other dynamic pricing models. During the search it became clear for me that the practical experts who have been using these models are reluctant to share the newest factors they think to influence prices and the related information. This is how the basic idea of my research came, which first focuses, in addition to the conventional room price influencing factors, to reveal and introduce the fields of interest of the experts nowadays, which may be factors influencing room price, second, by the analysis of international and Hungarian data, to reveal the pricing responses to extraordinary events, such as a pandemic, given worldwide and within Hungary by revenue managers, and third to map the effect of online relationship between the hotels and guests, which is easy to establish and maintain, on pricing and what the risks and advantages of this interactive process are.

In addition to answering the questions above, the purpose of my primary and secondary research was to incorporate my findings into the pricing models used later in my practical work, and if it is proven that certain factors do not affect pricing, these parameters are not necessary to consider as input data. Based on the above, I made the following questions and hypotheses:

- Can the statement of Hayes and Miller, i.e. if someone buys something for 10 dollars, it is worth more than 10 dollars for him, otherwise he would not have bought it, be adapted to the Hungarian leisure tourists visiting a Hungarian wellness hotel? That is, would the booking persons have been willing to pay even more than the paid room price?
- Is there any difference between the willingness to pay extra and whether the guest has already been in the given hotel?
- Do the guests who have already been in the hotel also read the guest opinions, or do they trust their former experience?
- What is the difference between generations regarding the consideration of guest opinions?
- Is there any correlation between the fair price felt by the guest and the collection of information online related to the population assessed?
- Contrary to the economic recession and unemployment, did the room price for Hungarian wellness tourists grow in a higher rate than in the years before COVID-19?
- The strict limitation of travelling abroad kept many leisure tourist within Hungary. Are the guests regularly going abroad less price sensitive during booking in a Hungarian hotel?
- Does the payment of the higher room price accompany with the higher amount of spending during the stay in the hotel?
- What is the relationship between peak periods and the length of booking window?
- Does travelling with children influence the length of booking window?
- Does online price monitoring influence the length of booking window?
- Is there any correlation between generations and the length of booking window?

Hypothesis 1:

The Hungarian domestic leisure tourists have willingness to pay extra compared to the room price paid by them, which has a correlation with the sociodemographic data of the booking person (sex, age, school qualification, residence).

Hypothesis 2:

The room price paid by the Hungarian leisure tourist and his/her willingness to pay extra are influenced by the guest opinions read before booking.

Hypothesis 3:

Being locked up and the restrictions caused by the COVID-19 decreased the room price sensitivity of Hungarian domestic leisure tourists during the free-to-travel periods (even if it was limited).

Hypothesis 4:

The willingness to pay extra of the guests booking for peak seasons when the rooms are basically more expensive is not lower than that of the guests arriving off peak seasons.

Hypothesis 5:

The length of booking window, i.e. the time between booking and arrival, depends on the sociodemographic data and the price information collection habits of the booking person.

2. LITERATURE REVIEW

2.1. Role of tourism in the economy

If one of the economic sectors which is a typical area of globalisation can be pointed out, it is tourism. Tourism is a dynamically increasing sector; it contributed to the global GDP by 10.3% in 2019 according to the data of WTTC (World Travel & Tourism Council), and employed that year 333 million people. However, pandemic showed that this is a highly sensitive (even if not the most sensitive) sector. According to GÖSSLING et al, the restrictions in 2020 due to COVID-19 (mostly travel, border crossing, opening hours and also services and room booking restrictions) will affect over 90% of the global population (GÖSSLING et al., 2020). Additionally, the OXFORD ECONOMICS (2020) predicted that the loss of this sector due to COVID-19 will be higher than the multiplied effect of the terrorist attack in New York (2001), the financial crisis ending in 210 and affecting 3 economic years and the SARS epidemic in 2002.

2.2. Revenue management and dynamic pricing

The tourism and catering sector is a frequently studied area for the experts of the topic, and as a field of research, it is strongly related to the market environment where the economic units and the customers exist. The high number of studies shows also the complexity of the field. From service provider aspect, it is still pricing to be the central issue for experts dealing with the management of catering establishments. However, the change of customer habits, the technical innovations or the transforming competitive environment require the establishment of more harmonised, longer-term strategies as well.

The customers using the services are more and more centred in the strategy of hotels, anticipating the age of personalised pricing and services solutions. Literature also follows the changes in the sector, and more and more research works are dealing with the questions of the new challenges related to the appearance of new marketing channels (e.g. OTAs) (TARRAHI et al., 2016; VIGLIA et al., 2016; JIANG et al., 2018) or the new customer generation having almost unlimited information due to digital technology (XIANG et al., 2015; BARTHEL et al., 2015; LAW et al., 2015). In parallel, hotel industry invests more and more into new technological solutions by continuously developing its algorithms elaborating pricing strategies.

2.2.1. The definition of yield management

Yield management can be defined in multiple ways. Yield management can be the application of information systems and pricing to ensure the availability of the sufficient capacity in the right place at the right time to maximise profitability (SMITH et al., 1992; LEGOHÉREL et al., 2013). It can also be defined as a tool connecting the supply of rooms with the demand expected based on prediction, by segmenting customers based on their booking habits and the capacity of the hotel (JAUNCEY et al., 1995; EL HADDAD et al., 2008). As the common point of the multiple definitions it can be stated that the purpose of yield management is to increase the yield of the hotel by determining the sufficient room price and bringing the decisions on the utilisation of the capacity.

Yield management systems regarding hotels can be classified into two large groups. The first is the quantity control group. This approach segments rooms based on categories such as room types, guest types, price limits or the days spent in the hotel. Every category has a fixed price, and the system aims to maximise the income as much as possible by varying the number of rooms belonging to the certain categories. According to another approach, similar rooms are classified into the same category, and based on demand and supply, a continuously corrected price is fit to these categories to maximise the yield of the rooms. This yield maximising method is called dynamic pricing (TALLURI – VAN RYZIN, 2006; JAAFAR et al., 2011).

2.2.2. Dynamic pricing and its analysed areas

Classic pricing methods are perfectly summarised by VIVES et al. (2018). They report multiple methods, including the cost-based pricing, the demand or supply based pricing, the market skimming technique, the market gaining pricing or the marketing-based (awareness-raising) pricing. Although the dynamic pricing method originates from aviation, it can be applied in wide range of markets. The way of its application depends on 3 important factors. First is the rechargeability of the available stock (goods or services) during the marketing period. The second important element is the independence of demand. The third dominant factor is the customer. Based on Figure 1 it is seen that dynamic pricing is assessed by classifying it into four large segments.

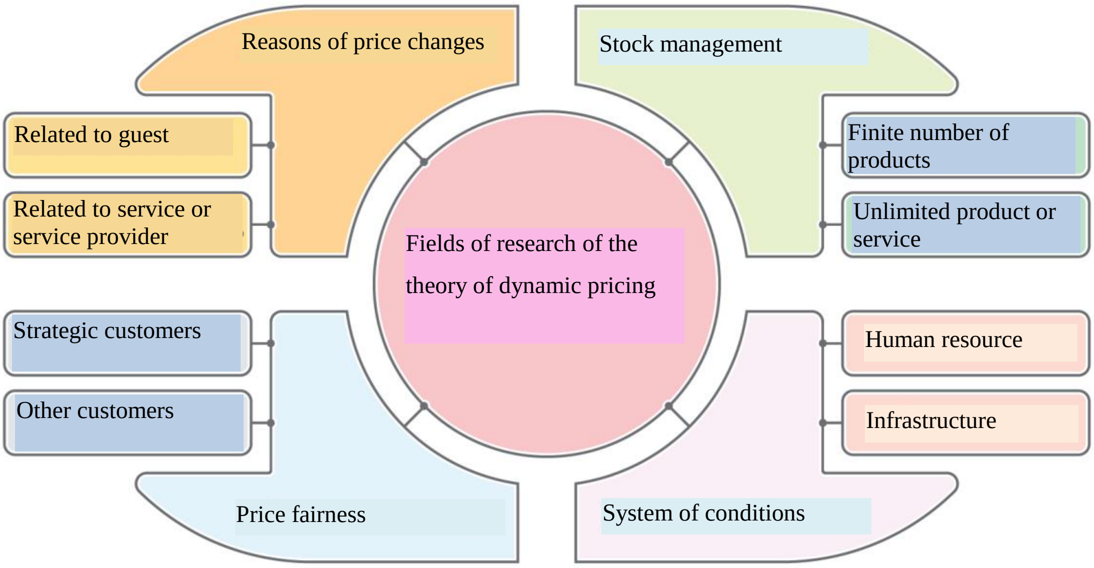

Figure 1: Research pathways of the theory of dynamic pricing

Reference: Own edition based on the research of BEREZINA et al. (2016); CAILLAUD et al. (2014); CHEN – SCHWARTZ (2008); TARRAHI et al. (2016); VAN DER REST et al. (2018) and VIGLIA et al. (2016)

These segments are the reasons of price change, stock management, price fairness and the applicability criteria. Out of fields of research, it is worth pointing out price fairness where the workers of the sector have to get to know the introduction and the use of a previously unused term: the reference price.

As an effect of digital revolution, the new generation of customers was born. These customers have continuous and almost unlimited access to information, including the room prices of a given hotel and its competitors (ABRATE – VIGILIA, 2016). As a result of continuous price control, a group of customers for whom the change of prices and the different pricing may confront with the so-called reference price formed by them, which may incite the feeling of their unfair treatment.

Reference price can be defined as a price which, according to the customer, is fair for a product selected by him/her. This is a kind of price-related expectation which is made of the former experiences of the customer among others (BOLTON et al., 2003; MAZUMDAR et al., 2005). Here, former experiences must include the online browsing experiences as well. These so-called strategic customers are willing to accept the changes of the prices as well if they feel it reasonable and it does not violate the reference price they established (JIANG et al. 2018).

2.2.3. Improvement opportunities of dynamic pricing models

As seen from the review above, the fundamental problem of the improvement of the pricing models is the appearance of high number of strategic customers. Several solutions can be found to improve pricing models and to rethink the methodology. By combining intelligent optimisation, heuristics and machine learning, BRUNATO and BATTITI (2019) established a simulator. The simulator provides answer within a very short time (15 minutes are mentioned in the study) how many bookings can be received and what the yield can be with the given pricing strategy of a hotel. ZHANG et al. (2019) selected another pathway. These authors are the members of a group which intend to integrate the state-of-the art data analysis and information technology into the algorithms operating dynamic pricing engines. Their three-step model assessed first the hotel and the wide range of its competitor hotels. This is where the basic price to be refined in the following two steps come from. The second stage predicts booking by a system using neural networks and machine learning. This is the so-called DeepFM method. (GUO et al., 2017). In the last step, the system uses deep neural networks to fine-tune the prices by using the already known data about the customers, among others. The DeepFM method means the connection of several neural networks (SCIENDIRECT.COM).

2.3. Short-term and long-term strategies

In nowadays operating environment, one of the most important tasks of yield managers becomes the drawing up of strategies. PULLMAN and ROGERS (2010) differentiate long-term and short-term strategic decisions. Both for the short-term and the long-term planning, segmentation is of key importance. In case of hotel industry, it manifests in two main areas: the customer and the hotel segmentation.

2.3.1. Customer segmentation

The purpose of customer segmentation is to classify the potential guests into groups the members of which have similar services preferences (IVANOV, 2014). The smaller customer group can be isolated the higher the chance is to assess how this group will react to the various price and services packages.

Although experts say that the customers would not take well personalised pricing, they would find it offensive, according to the research of Richards et al., the customers may be willing to accept the personalised prices if they can also take part in pricing (RICHARDS et al., 2016). The first thought of operators and owners, i.e. that this is an unimaginable idea. may modify if the current huge effect of contents published by the guests on pricing and booking is considered (TSIAKALI, 2018).

One of the methods of the segmentation of customers is internal segmentation which is directly controlled by the department of the yield management of the hotel. During internal segmentation, pricing alternatives are determined by considering variables such as seasonality, the actual market situation or a significant local event which would completely overwrite the predictions on historical booking habits (KIM et al., 2016). Out of several related decision factors, the most general differentiating factor of the room and service prices is booking time (SCHÜTZE, 2008).

Booking time has close relationship with the phenomenon of the so-called overbooking. This practically means that to maximise revenue, the hotel confirms more bookings than its actual capacity (SANCHEZ and SATIR, 2005).

A well-known method of internal segmentation is the application of price limits. Along certain rules, demand can be segmented, and we offer the services package for the individual customer groups at a different price. Limitation can be established along multiple variables, e.g. the booking time mentioned above can also be included, however, the size of the booking group or the number of the extra services used can also be used well (LIU et al., 2014).

A new pathway of internal segmentation is based on the concept that the hotel has more resources to increase revenue than only the rooms. Product packages are offered to guests where the rooms can be booked together with other services at a more favourable price as if only the rooms themselves were booked. For the hotel, excess revenue comes from the increasing utilisation of the other sections (DE TONI et al., 2017). In this way, the applicability of dynamic pricing models can be expanded to the other services in addition to hotel rooms.

Finally, in the topic of customer segmentation, one of the most basic separation must be mentioned: the purpose of the guests to use the services of a hotel. Based on this, customers can be classified into two categories: business travellers and leisure travellers. The difference between the two groups is manifested among others by the types of services expected from the hotel and the selection of the hotel as well (KASHYAP and BOJANIC, 2000; YAVAS and BABAKU, 2005). In nowadays modern technological era, an important difference between the two groups is the different information search strategy ((JOHNES and CHEN, 2011).

2.3.2. Hotel segmentation

In addition to the segmentation of customer groups, the management of the hotels must also determine where it positions itself in its own competitive environment. A good starting point here can be the number of stars which is still the best-known value measure for the customers (DIOKO et al., 2013). The online customer-generated contents provide a good opportunity to assess the reason of existence of the star system also by using content analyses in addition to the simple classification. By using this method, FANG et al. (2016) found that from the star-based classification, conclusion can be drawn about the quality of the services of the hotels. Nevertheless, star-based system has been criticised for years multiple times (NUNEZ-SERRANO et al., 2014). For instance it has been shown that the customer ratings are biased towards higher-end hotels and are not independent of price (FERNANDEZ-BARCALA et al., 2010; MARTIN-FUENTES, 2016).

2.4. Marketing channels

Technological development, the benefits of which was utilised by hotel industry among the first industries (ERDEM et al., 2009), could show significant results after improvements into this direction. Among others, the generation of yield and guest satisfaction increased by several tens of percent (BREWER et al., 2008), the incorporation of guest remarks into operation became a daily routine (BUHALIS and LAW 2008), which is due to the beneficial decrease of the reaction time of various levels of managers (JANUSZEWSKA et al., 2015). Fortunately, it soon became clear that the development of information technology does not lead to dismissals or job losses, but certain positions transform (TESONE, 2006). Along with the radical transformation of the operation of the yield management systems, the developments fundamentally changed the image of the marketing channel of hotels as well, and it has to be also considered that the information collection habits and decision mechanisms of potential guests also changed (WEB, 2016). It has to be accepted that the power of the seller and the buyer got balanced, and even the guests of the hotel can have unlimited and state-of-the-art information technology (HUA et al., 2015) and they feel themselves not only a passive actor (NEEDHAM, 2008). In the era of digitalisation, traditional and modern marketing channels are distinguished. In the issue of marketing channels, the appearance of online travel agencies (hereinafter referred to OTA), which is the most significant change gave rise to a new challenge in the market of the marketing channels (BARTHEL et al., 2015). The first OTA was introduced in the USA, in 1996 with the name Expedia. After the reinforcement of these OTAs, there were also statements saying that OTAs make the traditional travel agencies unnecessary, since they provide the customers with direct access to the prices and services of the hotels (XIANG et al., 2017). Later on, OTAs started to specialise depending on who to determine the price of the rooms for the guest: either the hotel or the OTA (LIAO et al., 2017). Furthermore, the so-called META-OTAs also appeared in the market. These sites compare the prices of the given accommodation available on the various OTAs (KIM et al., 2019).

The situation around marketing channels were further refined by the appearance of the brand.com-like sites. By reacting to the spread of OTAs and their accompanying price and commission dictating conduct, the big hotel corporations started to develop own online sites where the interested guests can access to the offers of the hotel really indirectly, without any mediator, can collect information and can book rooms as well (KIMES – WIRTZ, 2015).

To sum up the issue of various marketing channels it can be stated that both types can address significant customer markets, and both have different advantages and disadvantages. Traditional channels may accompany with lower costs, however, modern solutions can have access to wider groups of customers. In case of modern solutions, the advantages and the disadvantages of the own online sites and the OTAs must be assessed (TAN and DWYER, 2014; LAW et al, 2015).

2.5. Pricing and price strategy

The broadening of the scope of tasks of yield management does not modify the fact that the centre of decisions is the price. From the prices of each room up to bringing strategic decisions, pricing is the key issue of the operation of hotels. The first step to find the optimal price is to determine the demand function to determine the willingness to pay of the customer and the price flexibility depending on demand (SHY, 2008).

Based on the way of prediction, there are time series based analyses which rely only on historical data. The additive and multiplicative models are more developed, which consider the future events and outcomes as well. The most precise predictions are given by the combined models which provide results by mixing the methodology of the other models (LEE, 2018). By knowing the predictions, yield managers must determine which strategy to use to determine the prices. Literature reports almost unlimited number of pricing models, including but not limited to: Demand-based pricing, cost-based pricing where prices are fit to the costs of infrastructural developments (ENZ et al., 2015), the so-called market penetration pricing can be a good strategy for hotels entering the given market as a new competitor, and a further pathway can be the market skimming technique.

The purpose of the various pricing strategies is to gain competitive advantage and to broaden the customer basis in the hotel market segment. The efficiency of certain methods and their relationship with each other and other non-price-based yield management strategies are important questions of researches (e.g. NAIR, 2018). Nowadays there is a further external factor affecting price: rate parity (FORGACS, 2010). Based on this, customers must face the same price for the given product or service at every channel. Rate parity generated basically by the OTAs is subject to serious professional and legal debates even now.

2.6. Effect of COVID-19 on international and Hungarian tourism and hotel industry

The last golden age of Hungarian and international tourism and hence hotel industry ended in the spring of 2020. The dynamic development of the sector, which started in 2010, came to an end. During these less than 10 years, the most important indices of the sector were continuously improving. The number of people indirectly employed in the sector was increasing year by year. In 2010, about 260 million people were working in the sector, while in 2019, this number reached 333 million (WTCC, 2022).

In the first year of the pandemic, 62 million workplaces disappeared within a moment. This accompanied with a reduction of 18.2%, which hit the SMEs, the female and the young employees the hardest. After the depression of 2020 (by the progress of the defence against pandemic), the number of employees started to increase. At the end of 2021, this number reached 289 million which means an increase of 18 million compared to the depression of the previous year (WTCC, 2022). The contribution of the sector to global GDP was also continuously increasing, which reached 10.3% in 2019 and exceeded 9.6 trillion USD. The change from one year to the other was even higher in this case. The contribution to global GDP was only 5.3% (4.78 trillion USD), which showed moderate increase in 2021: 6.1% and 5.81 trillion USD (WTCC, 2022).

By analysing the similar data for Hungary it can be stated that Hungarian data follow the basic international trends. In the accommodation and catering sector (which is the most significant employer in tourism), the number of employees was 154.2 thousand in 2010, it reached 193 thousand in 2019 (193.4 thousand), which dropped to 176.9 thousand in 2020 (a decrease of 8.5%). However, in 2021 no increase was observed: moreover, the number of employees decreased about by further 7000 (KSH, 2022e). This is primarily justified by that after the ease of constraints and reopening, a part of dismissed employees refused to return to the sector.

After its depression in 2013, the contribution of the accommodation and catering sector to the GDP of Hungary increased to 792,302 million HUF for 2019, which dropped in 2020 by 35.1% to HUF 514,011 million. This decrease was lower compared to the GDP data of global tourism (which was slightly higher than 50%). Recovery was faster, since in 2021, the contribution of this sector to GDP in Hungary approached the level of 2019, by HUF 747,041 million (KSH, 2022f).

In Hungary, the spending of domestic tourism reached HUF 354 billion by an increase of 31% from the depression of 2020. The dynamics of growth is almost the same as the global data to the nearest tenth of a percent. (There, the growth rate of spending of domestic tourism was 31.4%). However, the growth of the spending of foreign tourists was 28% compared to 2020, which was HUF 1346 billion. This growth rate was an order of magnitude higher than the global data (3.8%). However, this is still 42% less than in 2019 (KSH, 2022g). The data above support the statement of the literature dealing with the crisis management of hotel and catering industry, i.e. the sector is highly vulnerable in case of crises and disasters which drastically change international tourism demand (MORRISH and JONES, 2020; RITCHIE and JIANG, 2019; SIGALA, 2020).

However, COVID-19 inflicted mortal wounds on tourism and hence hotel industry. During studying literature, it became clear that the set of factors influencing pricing became highly expanded, and the different pricing techniques produced sharp and significantly different results. In their comprehensive study, DUNG LE and GIANG PHI (LE et al., 2020) were among the first authors who endeavoured to collect the strategic responses of hotel industry to COVID-19 and to determine a pandemic treatment framework system. They concluded that currently there is no standardised framework system, and it cannot be determined yet.

Crisis management during the crisis and the framework of recovery must be very flexible, since after the decrease in the number of infections, the termination or the loosening of the restrictions of travel, the desire to travel can rapidly increase. For instance, in August 2020, the average occupancy of hotels reached 50% in the USA, which was below 20% in March that year (OLIVER, 2020). However, in addition to restrictions by law, a new, formerly unseen aspect of the sense of safety of tourists appeared: the health situation of the destination to travel and the increased expectation of the flexibility of the service providers (RAFFAY, 2020).

The root of the crisis management theory of modern corporations is included in the study of BOOTH (2015). Compared to the former perspective, this theory recommends the dynamic approach of crises to let the corporations rapidly react to uncertainty. Further researches in this regard stated that the acceptance of dynamic pricing and/or booking tactical strategies in case of high uncertainty and narrower demand become mandatory for hotel and catering service providers (ABRATE and VIGLIA, 2016). The study of PIGA et al. highlights that the dynamic pricing strategies of hotels need to be combined with the broadening of product characteristics (e.g. free booking cancellation, the option “room with breakfast” or the number of guests allowed in a room) and by making them more flexible to cope with economic losses (PIGA et al., 2022).

The different pricing policy can be detected in practice as well by comparing global data ensured by the STR database (https://str.com/data-solutions). As a part of CoStar-Group Inc. (NASDAQ; CSGP), this company has been publishing global data and data comparison analyses since October 2019 for the HORECA (HOtels, REstaurants, CAfés) sector. The summarised data of global tourism regions originate from several hundred thousands of rooms sold for every region.

Based on the analysis of data it can be stated that the occupancy of hotel rooms was the lowest in Europe in the first year of the pandemic, and this was the region also where the percentage of decrease was far the highest: over 54% compared to 2019. The rate of decrease did not reach 37% in any other continents grouped in terms of tourism. Even though the occupancy increased at the highest percentage rate in Europe in 2021, the average room prices could not be increased to the level to let the Old Continent regain its first place in terms of RevPAR indices, thus, America, Middle-East and Africa significantly outperformed Europe in this regard (*Table 1*).

Table 1: Room occupancy (%), average room price (EUR) and revenue per available room - RevPAR (EUR) 2019-2021 for global tourism regions

	Occupancy (%)			***Average room price (EUR)***			***RevPAR (EUR)***		
	2019	**2020**	**2021**	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**
Asia, Australia and Oceania	69.2	44.5	48.7	86.6	64.4	66	59.9	28.7	32.1
America	65.5	42.8	55.8	117	90.3	105	76.4	38.6	58.9
Europe	72.1	33.1	43.3	113	91.3	104	81.4	30.3	45
Middle East and Africa	63.9	40.4	51	115	98	112	73.6	39.4	57.3

Reference: Own editing based on the data of STR (2022)

By focusing only Europe it is seen that Western European hotels show different pattern than the other three regions. The growth rate after the drastic drop in room occupancy in 2020 was much lower than for the remaining areas. The growth rate of only 14.6% can be considered as highly moderate compared to the increase of 33.5% of the next region. However, this is not due to that the hotels in the region started strong increase of the room prices, since in this area, the average room price growth was the lowest.

As the last step of data reduction, we can pay attention to the analysis of the similar data of Hungary and the dominant tourism regions thereof.

At first sight it is striking that Budapest shows a completely different pattern than the other tourism regions, and the effect of the capital on the data of the whole country is very high (*Table 2*). The different data change of Budapest is determined basically by two factors. On the one hand, the drop of the room occupancy index is the most expressed, and on the other, as the single region, the average room prices were unable to reach the level of 2019 even in 2021, while out of Budapest, the average room prices exceeded the 2019 prices even in 2020, and were able to increase on in 2021 in every region.

Table 2: Room occupancy (%), average room price (HUF) and revenue per available room - RevPAR (HUF) 2019-2021 for Hungary and its dominant tourism regions

	Occupancy (%)			***Average room price (HUF)***			***RevPAR (HUF)***		
	2019	**2020**	**2021**	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**
Hungary	61.5	32.2	39.6	22,474	21,126	24,378	13,822	6,804	9,661
Budapest	76	25.3	35.6	29,073	23,735	28,490	22,094	6,002	10,134
Lake Balaton	55.7	39.7	45.5	17,833	22,827	25,835	9,936	9,060	11,764
Northern Great Hungarian Plain	50.2	30.8	37.5	14,537	16,732	18,270	7,302	5,158	6,843
Southern Transdanubia	46.9	35	39.7	14,365	15,995	18,640	6,737	5,595	7,395
Northern Hungary	54.1	41.6	47.1	20,521	23,543	26,972	11,099	9,786	12,693

Reference: Own editing based on the data of KSH (2022b)

By the detailed analysis of the data, the following statements can be made. In the first year of the pandemic, room occupancy substantially decreased in every significant tourism region of Hungary, however, this decrease was half of the extent or even less out of Budapest compared to Budapest. The high number of hotel rooms in Budapest highly influences the data of Hungary as well, which in this way fits the extent of the decrease in occupancy that year in Europe. The difference between the regions and Budapest lies in the composition of guests. A significant part of the room nights in Budapest can be attributed to foreign overnight stays, while out of Budapest, the domestic overnight stays are dominant.

Budapest was unable to replace the foreign guests even by the decrease of the room price. Domestic tourism participants failed to make the capital more attractive. Destinations out of Budapest significantly increased their average room prices even in the first year of the pandemic, which pricing policy is the opposite of global trends. This increase in the average room price was continued, which resulted in that even though the occupancy indices did not reach the values in 2019, the revenue per available room (RevPAR index) exceeded that in 2019 due to the extremely high average room price. The pricing of the hotels near Lake Balaton is worth considering, since compared to the record year of 2019, they were able to increase their average room prices by further 28% (*Table 2*). They perfectly anticipated (together with the other regions out of Budapest) the desire of Hungarian inhabitants to travel after the long lock-downs and restrictions, and they applied these factors in their dynamic pricing models. They also made use of the fact well that a significant part of the inhabitants having high discretionary income and significant savings and usually travelling abroad to recreate selected a Hungarian destination during these two years.

The tourist attraction of Budapest is indisputable. However, hotels have seen potential in the foreign guests for several years, and have performed the significant part of their marketing activity in this field. The developments of the Liszt Ferenc International Airport, the new flights appearing there one after another and the activity of the Hungarian Tourism Agency and the Hungarian Convention Bureau also reinforced this direction. By checking the average room prices of each tourism region in the peak seasons of the three assessed years it is confirmed how unsuccessful it was to convince domestic tourists to spend a summer holiday in Budapest. In several regions, the average room prices were higher in the peak period of 2020 and 2021 than in Budapest, and contrary to this, Budapest was not attractive enough. However, contrary to the increased room prices, tourists were streaming to the out-of-Budapest region in these two months. This is proven by the high room occupancy rates.

To sum up it can be stated that the demand for hotel rooms significantly decreased everywhere in the world due to pandemic. The decrease in demand was incorporated in the pricing models in different ways by hotel operators. Some of them intended to reach the number of bookings by moving the room prices in a broader range, while some of them preferred the restrictions of discounts. Pricing in smaller regions may significantly differ from the international and global trends. Price changes within the year have strong correlation with the actual pandemic conditions and the level of infection.

3. MATERIALS AND METHODS

3.1 Databases and methods used for the secondary research

During the secondary research I studied analysing databases introducing the global and the Hungarian hotel industry both comprehensively and in details from the aspect of my research to be able to compare the regional trends in a broader range, i.e. with the Hungarian and international trends. During literature review, I have already introduced international and global analyses and statistical data. Here, the research methodology recommendations of KOTHARI (2004) were considered. The databases used during the analysis were used by studying the sites of EUROSTAT, STR, UNWTO, WTO and WTTC. I am grateful for the University of Debrecen to make possible the cooperation with the STR Global Ltd. having maybe the greatest relevant and up-to-date database of dominant basic hotel data (occupancy, average price, RevPAR). During the analysis of the Hungarian data, I used the data of KSH (Central Statistical Office of Hungary), the Hungarian Tourism Agency (its predecessor was the Hungarian Tourism Ltd.) and the Hungarian Hotel and Restaurant Association. However, I started my research by studying the findings of the renowned Hungarian and international researchers of the given fields. In this way I tried to create a foundation for my own research, to reveal correlations by the analysis of databases and to draw conclusions from these data.

3.2 Introduction of the primary research

During my primary research, I performed a quantitative research. The basis thereof was the questionnaire made by me. The questionnaire had 44 questions. The questions contained open and closed questions, including simple and multiple choices and scale-type questions. For some questions, I used a five-point Likert scale.

The questions were classified into 4 topics. Responses to the questions on the booking person may facilitate the answers to the pricing assumptions built on personalisation. With the responses to the questions on willingness to pay, I intended to analyse the excess revenue from the booked services. With the questions on booking habits I endeavoured mainly to discover the correlation between the price and these habits. These questions point out the role of social media and the relationship between booking channels and the price. Finally, the questions on influenceability achieved by price change must be mentioned. The compilation of the final questions and the refining thereof were supported by the pilot project prior to primary research, where the booking habits of leisure tourists were assessed within and out of tourism peak season.

The online delivery of the questionnaire and the assessment started in January 2020 and ended in February 2022. The long duration was justified by the COVID-19 pandemic started in the beginning of 2020, since from this time, leisure tourism was blocked completely several times until the spring of 2022 (among others, law banned the opening of commercial accommodations or leisure travel, and room bookings of this nature were highly restricted. The questionnaires were delivered as follows:

After receiving the booking, the e-mail addresses used for booking were imported to the professional questionnaire editing and sending interface of surveymonkey.com. From here, the questionnaires were sent weekly manually to the imported e-mail addresses. The addressees received a real e-mail which requested them to support the research by completing the questionnaire. The questionnaire was available by clicking a button in the e-mail. If the completion of the questionnaire was interrupted, it remained available from the e-mail, and completion could be continued from the point of interruption.

Out of the sent 2576 questionnaires, 1176 were received. The willingness to reply was 45.6%. Upon the selection of the questionnaires received during the research, the most important filter was whether the questionnaire was completed and sent back before the arrival of the guest. In this way I wanted to avoid any bias from the fresh experience of the stay in the hotel. After further filters, I used the data sent by 1073 respondents in my research.

Out of the respondents having booked a room, 586 were women (54.6%) and 487 (46.6%) were men. The age distribution of respondents is shown by the Figure 2.

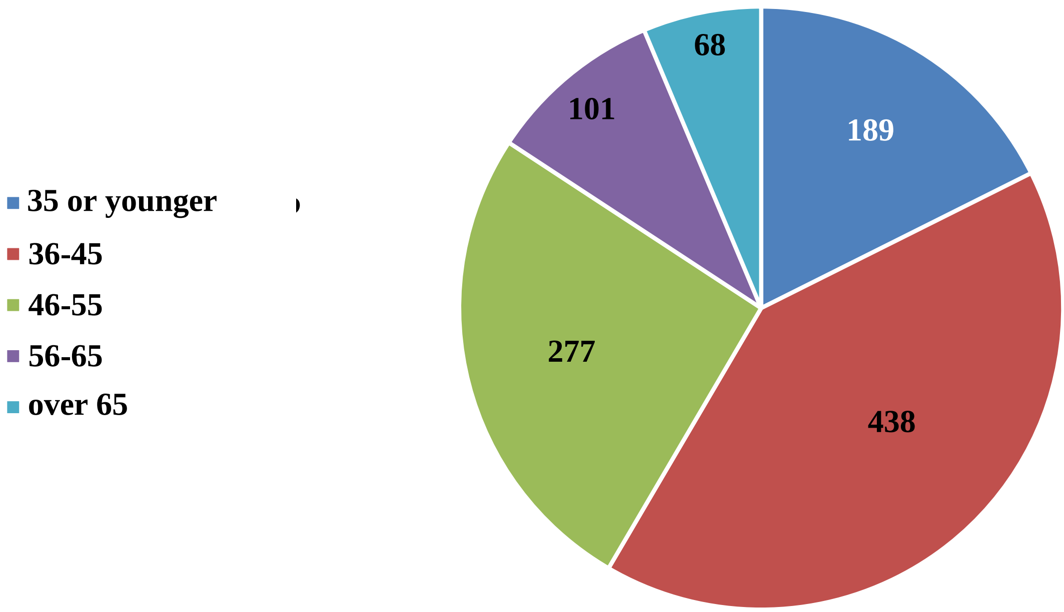

Figure 2: Age distribution of respondents

Reference: Own editing based on my own research findings (2022)

Out of the people arranging the booking, 398 have a school qualification of maturity (37.1%), which was almost the same as people with BSc or BA degree (385 people, 35.9%). 27% of the respondents (290 people) had university degree (Masters, Msc, MA). Each person having arranged the booking appeared in the hotel as a guest. Upon the distribution of the residence of the respondents, *Metropolis* meant a city with a size of Budapest (2 million inhabitants), a *City* had over 100,000 inhabitants, a *Large town* had inhabitants between 20,000-100,000, a *Town* had inhabitants between 5000-19,999 and a *Village or smaller* had less than 5000 inhabitants. Most of the respondents were in the Metropolis category (282 people, 26.3%), while the lowest number of respondents came from a City (135 people, 12.6%). In the remaining three categories, with the decreasing size of the settlements, the ratio of respondents were 23.4%, 18.9% and 18.8%, respectively.

Data were evaluated by MS Excel and IBM SPSS Statistics 22 (IBM, 2015). In addition to the calculation of basic statistics (ratios, mean values, standard deviation), I applied parametrised and non-parametrised tests based on hypothesis assessment, and I performed regression model calculations as well. The methods applied are described below.

Pearson's chi-squared test is a non-parametrised statistical procedure to analyse a significant deviation between a theoretical (conditional) and an empirical frequency chart. Out of them, the theoretical frequency chart represents a hypothetical chart which would apply in case of the independence of the variable analysed, while the empirical frequency chart contains the measured values. If the test is significant ($p<\alpha$), it can be concluded that there is a statistically justified deviation between the two frequency charts, and the empirical frequency chart deviates from the conditional chart representing the independence of variables. In this way, a significant correlation between variables is stated. The test can be used to analyse the relationship between nominal and ordinal scale of measurement (FIELD, 2013).

$$\chi^2 = \sum_i \sum_j \frac{\left(f_{ij}-e_{ij}\right)^2}{e_{ij}} \qquad (1)$$

Here f_{ij} indicates the (observed) abundance calculated from the data (where i indicates rows and j indicates columns), while e_{ij} means theoretical abundance. Test statistics follow χ^2 distribution with $(n-1)(m-1)$ degrees of freedom where *n* means the number of rows and *m* means the number of columns (FIELD, 2013).

One-way analysis of variance (ANOVA) is a parametrised statistical procedure working with an output/dependent variable of scale of measurement level and a grouping/independent variable (with nominal or ordinal scale of measurement). In case of ANOVA, it is tested whether there is a statistically justifiable deviation between the grouping variable categories (representing the sets independent of each other) in the mean value of the output/dependent variable. If the test is significant ($p<\alpha$) a significant variation between the analysed sets can be stated. To find between which specific set pair(s) there is a significant difference, the so-called post-hoc analysis must be applied (FIELD, 2013). ANOVA is a simple linear model, and it is suitable for the comparison of the averages of several independent groups. In case of a suitable database and theoretical model, often regression models are applied. Although regression model is more complex, and it fits better to the response to the questions of this research, ANOVA and regression analysis are also built on a linear model, there is no real difference between them (FIELD, 2013).

Upon the application of the regression analysis, the purpose of the analyst is to establish a prediction model. To establish this model, the dependent/output variable (we intend to explain) and the independent/explaining variable(s) (by which we would like to explain the dependent variable) must be separated. Many types of regression modelling can be applied, and the selection among them depends on multiple factors (such as the scale of measurement of the analysed variables or the form of relationship between them). Among the options to choose, there is the **logarithmic regression analysis**. This regression form is used, as the income or price related dependent variables have typically a skewed distribution, which gets closer to the classic normal distribution by a logarithmic transformation. Additionally, logarithmic transformation helps in the strengthening of a linear correlation and the interpretation of parameters as well. In this case, the conventional linear regression equation is modified according to the *Equation 1* by the transformation of the explained variable (BENOIT, 2011).

$$\ln(Y_{estimated}) = b_0 + b_1 X_1, \tag{1}$$

where $Y_{estimated}$ indicates the dependant/output variable as estimated by the model, *ln* indicates natural logarithm, b_0 is the constant of the model, b_1 is the coefficient estimated for the analysed independent/explaining variable and X_1 is the analysed independent/explaining variable. For my study, regression models are constructed as follows:

$$\ln(\text{Price of an overnight stay}) = b_0 + b_i Personal\ data_i$$

$$\ln(\text{Days between booking and arrival}) = b_0 + b_i Personal\ data_i$$

4. TEST RESULTS AND THE MAIN STATEMENTS OF THE DISSERTATION

The central topic of my research was to analyse the willingness to pay extra in addition to the price of the hotel rooms upon booking. From the point of view of revenue management, hotel room is a perishable asset: what cannot be sold tonight, it cannot be sold tomorrow. However, the available capacity (stock) is finite. It is crucial whether the rooms are sold to customers at the highest possible price by the hotel.

4.1. Analysis of the relationship between willingness to pay extra and the data of the booking person (sociodemographic data)

The findings shown in this chapter is related to the analysis of the following hypothesis: *(H1) The Hungarian domestic leisure tourists have willingness to pay extra compared to the room price paid by them, which has a correlation with the sociodemographic data of the booking person (e.g. sex, age, school qualification, residence).*

From the point of view of willingness to pay extra it is crucial that more than the half of the sample of 1073, 588 people (54.8%) did not determine a maximum room price he/she is willing to pay. And even a quarter (24.7%) of the people having a maximum room price (485 people) exceeded such price. By crosstabs analysis I stated that the booking women have a predetermined maximum price, which they observe, at a significantly higher rate than men ($\chi^2 = 12.359$, $p=0.002$). The presumable **willingness to pay extra** after the submission of booking **is 60.8%**, which supports the first part of my hypothesis, stating that Hungarian leisure tourists have willingness to pay extra. It is an important finding that this did not show correlation during crosstabs analyses with the frequency of earlier stays in the given or any other Hungarian wellness hotels. However, I found significant correlation with the visitation frequency of foreign wellness hotels ($\chi^2=19.108$, $p=0.004$). The higher the willingness to pay extra and also the extent thereof, the more often the booking person visits foreign wellness hotels.

To determine the extent of willingness to pay extra and to completely analyse the data, the amounts given in HUF were converted to percentage. The average value of willingness to pay extra is the 8.6% of the booking value (N= 652, standard deviation: 8.15). The minimum amount is 0.2%, while the maximum is 82.1%. This means for the specific bookings HUF 252 and HUF 39,896, respectively. Although the willingness to pay almost HUF 40,000 seems to be high for a room night, the room price of HUF 88,500 obtained with this extra is still significantly lower than the room price of HUF 126,500 at which the lowest extra payment was found. By variance analysis I stated that the extent of willingness to pay extra shows significant correlation with the highest school qualification (**$F=7.81$, $p=0.008$**) and the sex (**$F= 5.817$, $p=0.016$**) of the booking person. It is the people with the highest school qualification (MSc, MA) and men to have significantly higher willingness to pay extra than people with lower school qualification and women. *These findings partially prove the second part of my hypothesis.*

Based on the findings of further analyses (crosstab and variance analyses) it can be stated that the vast majority of people (61.5%) is willing to pay higher room price for the flexibility of the date of arrival at the hotel who predetermined a maximum price before booking, which can be interpreted as a hidden room price increase procedure. According to literature, also with the use of dynamic pricing in a broader range there is a possibility to increase revenue. For these guests, services must be included into the room price, and in this way, the higher sales price can be achieved. My analysis proved this as well, since 87.2% of the booking persons ticked at least one extra service he/she would surely pay or pay with high probability. It is also proven that the same behavioural pattern is followed by the booking people as well who maximised in advance the price they can pay. Here, the ratio is 84.6%. Services and the related test findings are introduced in the Table 2.

Table 3: Values for the willingness to pay extra for extra services in addition to normal services by the booking persons (average, standard deviation) (1 = surely not, 5 surely yes) and the values of the extra services determined by the people with willingness to pay for the extra service (HUF person/night (average, standard deviation)

Name of extra service	**Booking persons**			**People determining an amount for the extra service**		
	Average	**Standard deviation**	**Number of elements**	**Average (HUF)**	**Standard deviation**	**Number of elements**
Providing a bicycle	1.62	0.94	1073	1864.4	2780.1	202
Entrance to zoo	2.59	1.22	1073	2945.8	2936.5	287
Unlimited consumption of soft drinks	3.26	1.25	1073	4861.9	5315.3	328
Unlimited consumption of snack in daytime (fruit, snacks, salty and sweet biscuits)	3.52	1.23	1073	4259.6	4798.5	319
Entrance into museums in the city	2.49	1.17	1073	2302.8	2776.9	225
Trip to Hortobágy	2.34	1.20	1073	3558.8	7760.2	208
Wellness treatment every day	3.71	1.23	1073	6325.2	7542.8	322

Use of a stable high-speed internet	2.23	1.26	1073	1162.6	2196.5	198
Own personal assistant in the hotel	1.59	0.91	1073	1319.2	3207.3	161
Local public transport	1.73	1.05	1073	914.5	1669.2	177
Concert or theatre ticket	2.33	1.24	1073	3033.6	4536.1	210

Reference: Own editing based on my own research findings (2022)

4.2. Effect of guest opinions on the assessment of the extent of the paid room price and the willingness to pay extra.

Digital revolution and the fact that wide layers of society can join an information highway with enormous data within few moments, even from a mobile device, fundamentally influence the pricing policy of hotels. Especially the social media and the continuous exchange of information changed the behaviour of booking people. My second hypothesis was linked to this topic: *(H2) The room price paid by the Hungarian domestic leisure tourist and his/her willingness to pay extra are influenced by the guest opinions read before booking.*

Out of the sample of 1073 people, altogether 82 (7.6%) used any traditional communication channel to collect room price information. Everyone else collected room price information exclusively online (92.4% of the sample). There are even less, 28 people (2.6%) who used only traditional channels to collect room price information. Out of the sociodemographic data of the booking person, only the age showed significant correlation regarding the use of channels to collect room price information.

By performing the standardised residuals tests, I obtained that out of the young booking people (under 35 years) the ratio who collect room price information not only on the website of the hotel but also in other internet sites is significantly higher than for other age groups, while this significance has a negative sign in case of booking people over 55, i.e. less of them than expected use websites other than the own website of the hotel. In case of the traditional information collection channels, a significant correlation of inverse sign can be observed for these two age groups (*Table 4*).

Booking people under 35 use traditional channels significantly less, while booking people over 55 use these channels significantly more. These findings are identical to those of BANDALOUSKI et al. (2018) who state that one or more generations grew up and became room booker, who endeavour to determine the fairness and acceptability of the offered room price for them by collecting the most possible pieces of information.

Table 4: Findings of the correlation between the age of the booking people and the use of channels to collect information, by standardised residuals test. (more = more than expected within this category, less = less than expected within this category)

	age 35 or less	age between 36-45	age between 46-55	age between 56-65	age above 65
Collected price information on the website of the hotel	expected	expected	expected	expected	expected
Did not collect price information on the website of the hotel	expected	expected	expected	expected	expected
Collected price information in other websites	more	expected	expected	less	less
Did not collect price information in other websites	less	expected	expected	more	more
Collected price information through traditional channels	less	expected	expected	more	more
Did not collect price information through traditional channels	more	expected	expected	less	less

Reference: Own editing based on my own research findings (2022)

Guest opinions and the ratings given by guests have always been affected room prices. The two most important filter criteria of online booking sites became price and ratings by guests. If price was entered as a primary filter criterion, the booking person selected usually a cheaper room. However, if the average rating by guests was the primary filter criterion, the guest usually booked the accommodation with the higher numeric rating. (LOASCHILDER et al., 2017). Ratings by guests became one of the crucial input data of dynamic pricing models. Therefore, I paid extra attention to the assessment of this question during my research.

A significant part of the analysed booking people not only collected price information online, but most of the read opinions by guests as well. Over the half of the sample (612 people, 57%) were dealing with the opinions they did not need to look for, however, there were 115 people (10.7%) who checked opinions from guests at every online site he/she considered significant. By crosstabs I succeeded to reveal that there is a significant correlation between the age of the booking people and the consideration of opinions of guests upon determining the price and the frequency of reading opinions of guests. These correlations are shown in *Table 5*.

Table 5: Correlation of the age of the booking person, the frequency of reading opinions of guests and the consideration of these opinions upon determining the price, by standardised residuals test. (more = more than expected within this category, less = less than expected within this category)

	age 35 or less	**age between 36-45**	**age between 46-55**	**age between 56-65**	**age above 65**
Did not read opinions of guests before booking	less	expected	expected	expected	expected
Read only few opinions of guests before booking	expected	less	expected	expected	less
Read several opinions of guests before booking	expected	expected	expected	expected	expected
Read all opinions of guests he/she found before booking	more	expected	expected	expected	less
Did not consider opinions from guests to determine the price	expected	expected	expected	expected	expected
Slightly considered opinions from guests to determine the price	expected	expected	expected	expected	expected
Opinions of guests were as important as any other factor to determine the price	expected	less	expected	expected	more
Highly considered opinions from guests to determine the price.	expected	more	expected	expected	less

Reference: Own editing based on my own research findings (2022)

By analysing the findings it can be stated that compared to other age groups, there are relatively less booking people under 35 who do not read opinions of guests at all, and there are relatively more booking people in this age group who read all opinions of guests available at sites relevant for them. For the next age group (between 36-45), there were relatively less people compared to the other age groups, who checked only few opinions from guests, and the booking people over 65 show similar behavioural pattern. However, in the oldest age group, the ratio of booking people who studied every information in any sites they considered significant was significantly lower than this ratio in the other age groups. By continuing the assessment of age groups, there is significant difference in the followings: there are significantly more booking people in the age group between 36-45 who highly considered opinions from guests to determine the room price compared to the other age groups. Furthermore, from this aspect the ratio is much lower among the oldest respondent group. At the same time, the ratio of booking guest for whom the opinions of guests were as important as any other factor to determine the price was higher in this age group.

By analysing the correlation between the maximum price limit before booking and the opinion of guests, a significant correlation was found ($\chi^2=31.366, p=0.000$). By performing the standardised residuals test I found that people who decided a maximum room price they intend to pay, studied much more opinions of guests than expected. Furthermore, people who determined a maximum amount in advance strongly relied on opinions of guests to determine such amount. *The findings of my analyses prove my hypothesis.*

4.3. Effect of pricing policies of Hungarian hotels during the pandemics on the domestic leisure tourists

Data collection for my primary research practically covered the period of pandemic, since it lasted from the end of spring 2020 until February 2022. The diversity of pricing policies during the pandemic has already been introduced herein during the analysis of secondary data. There was no standardised model to treat room prices. Moreover, revenue managers were thinking about pricing differently even within continents and countries. Based on the data from 2020/2021, the pricing policy of Western Europe was the least successful within Europe (*Table 1*). Within Hungary, the bravely pricing out-of-Budapest regions were the unambiguous winners of the two years of the pandemic (*Table 2*). Experience shows that the recovery functions of leisure and business tourism as well as the preference of the domestic tourists to select Hungarian or foreign hotels sharply separated from each other. The analysis of these secondary data is also necessary to analyse my Hypothesis 3 (H3), i.e. *In the period of pandemic, the room price sensitivity of Hungarian domestic leisure tourists decreased*.

The recovery of the business tourism is going to be slower than the ramp up of leisure tourism. The reason of it that not only the implemented restrictions decreased the number of business travels radically but also the efforts of the employers aiming primarily the maintenance of the operation of the given corporation or company and the preservation of the capacity of work of their own human resources (and the employees of their own supply chain be decreasing the number of meetings). These efforts contributed to the exponential growth of digital business meeting channels (e.g. Teams, Zoom), the significant strengthening of home office facilities, and the success thereof even contributed to the slow recovery of business tourism. However, the collection of experiences by leisure tourists is based on personal experiences and participation, which assumes travel. Travels of Hungarian tourists abroad and the number of their overnight stays abroad drastically decreased in

2020. In the Quarter III of the first year of the pandemic, almost 9 million and in the Quarter IV of the same year, 3.7 million days were spent abroad by Hungarian tourists, which was only 34.6% and 26% of the basis period of 2019, respectively. For the whole year 2020, the decrease was 68% (KSH, 2021).

At the same time, for domestic tourism, much lower drop was observed. It can be stated that domestic tourism became stronger compared to travels abroad. In 2020, the number of domestic guest nights decreased only by 22% (TURIZMUS.COM). The primary target of Hungarian leisure tourists became Hungary, and the most important reason thereof was safety. Travel restrictions and the feeling of locked up increased the desire to travel as early as in the summer of 2020. This was reinforced on by the prolongation of the pandemic. This was supported by the report of the Hungarian Tourism Agency based on the National Tourism Data Supply Centre. Based on this report, the preliminary bookings for the tourism peak season was 40% higher at the beginning of May 2021 than in the base year (TURIZMUS.COM, 2021c). Hungarian wellness hotels experienced it at their own level, and they made use of it during their pricing. One of the basic input data of booking engines (and hence pricing) is the expected occupancy. By detecting the increase of occupancy compared to the change dynamics experienced in the preceding years, algorithms corrected pricing immediately upwards. By analysing the inflation of the previous 6 years and the change of the average room prices of the significant Hungarian tourism regions it is immediately clear that in the first two years of the pandemic, pricing was determined in the hotels out of Budapest by separating from inflation and significantly exceeding it (*Table 6*).

Table 6: Average room price change in the dominant tourism regions of Hungary (%) and the inflation rate in Hungary (%) in 2016-2021

	Rate of change of the average room price (%)					
	2016/15	2017/16	2018/17	2019/18	2020/19	2021/20
Lake Balaton	105	104.1	99.9	106.9	128	113.2
Northern Great Hungarian Plain	104.7	104.6	100.7	106	115.1	109.2
Southern Transdanubia	105.4	107.3	98.5	103.1	111.3	116.5
Northern Hungary	109.5	107.7	99.9	108	114.7	114.6
	Inflation rate					
	2016/15	2017/16	2018/17	2019/18	2020/19	2021/20
Hungary	100.4	102.4	102.8	103.4	103.3	105.1

Reference: Own editing based on the data of KSH (2022j)

If we add that in the tourism peak season of 2021 (July and August) occupancy data exceeded the data of the reference year 2019 it can be stated that the price sensitivity of domestic tourists decreased. *I consider my hypothesis as proven.*

4.4. Correlation between peak periods and willingness to pay extra

Peak periods always play a distinguished role in the pricing policy of hotels. This was already the case before dynamic pricing was put on an IT basis, when hotels often determined their room prices a year in advance, which even then included pre-season, mid-season and peak season prices. Multiple factors influence which days of the year are considered as peak season by hotels. However, it is sure that independently of the way of classification, room prices are the most expensive in this season. *Based on by hypothesis (H4), the willingness to pay extra of the guests in this season is not lower than in any other season.*

47% (503 booking people) of the whole sample booked room for the peak season. With the help of variance analysis I analysed whether the willingness to pay extra and the extent thereof is correlated whether the guest arrives in the weekend or in weekdays or in peak season or off peak season. Findings show ($p=0.219$ and $p=0.387$, respectively) that there is no correlation between these factors. This is an important finding, since according to the analysis performed by logarithmic regression model where the dependent variable is the paid room price for an overnight stay, an overnight stay cost on average 12% more in the weekend and 39% more in the peak season. Contrary to this, the extent of willingness to pay extra of the people booking for more expensive periods is not lower than the people booking for the cheaper periods. *Based on these findings, I consider my hypothesis as proven.*

4.5. Analysis of the price influencing effect of the length of booking window

The evolution of technology and the expansion of OTAs have upset the stable booking lead times (the length of the booking window) that have been established over many years and can be well forecast by revenue managers. Furthermore, fluctuations to either side may take place regarding the average booking window duration. Booking predictions (based on the length of booking window) are factors significantly influencing dynamic pricing. According to my last hypothesis (H5), the length of booking window depends on the sociodemographic data and the price information collection habits of the booking person.

In Figure 7 it is seen that for the sample analysed, the number of booking of Hungarian leisure tourists has a peak at 2-4 weeks before arrival, and even in the 7 days preceding the day of arrival (so to say, in the last minute), there were 60 bookings.

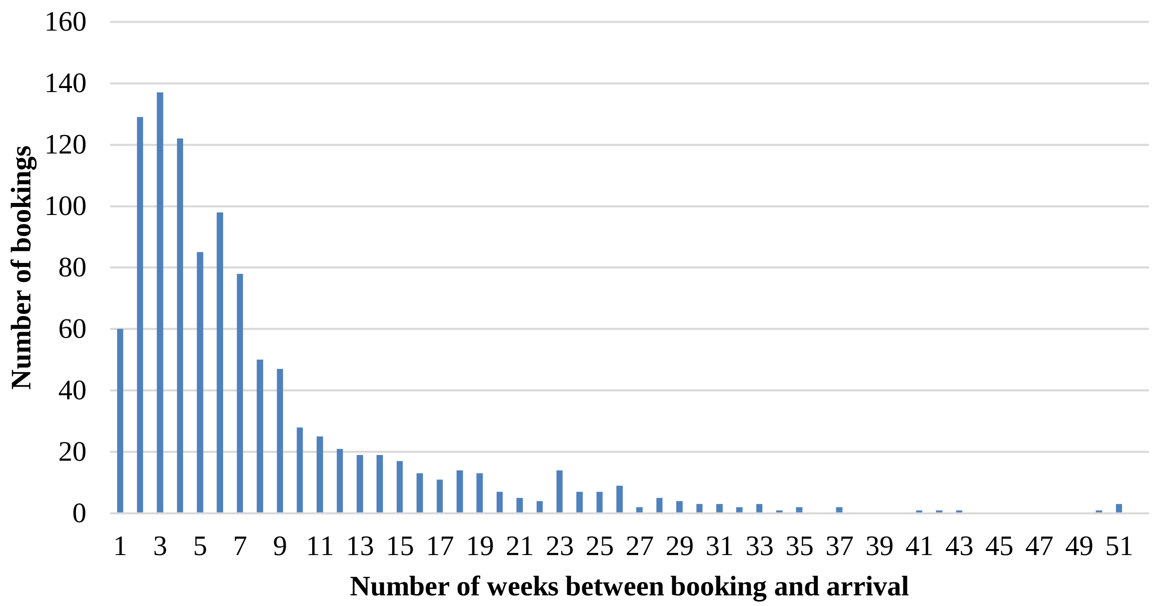

Figure 7: Booking intensity of guests (pcs) before arrival (weeks)

Reference: Own editing based on my own research findings (2022)

It can be stated that the time between arrival and booking got shortened: 75.1% of bookings take place within 9 weeks before arrival. This significantly influences pricing. My findings prove those of LEE (2016) stating that revenue managers must start the discounting of room prices, made due to the fear of the rooms remaining empty, closer to the date of arrival than in the period before the appearance of OTAs, since the time of booking by the guests got closer to the arrival. However, upon discounting, the external unique "noise" (such as pandemic) must be also considered, which influence the time period of discounting: in this case they shorten it.

The correlation between the personal data of the booking person and the length of booking window were analysed by logarithmic regression model. Significant correlations were found in the following cases:

- The booking window length was 32% longer for the age group between 56-65 than for under 35 years.
- The booking window of inhabitants living in a Large town (inhabitants between 19,999-100,000) is by 17% longer than the inhabitants of Budapest.
- For the guests usually visiting foreign wellness hotels, the booking window is shorter than for guests who do not visit foreign hotels. By the increase of the frequency of visiting foreign hotels, the booking window gets shorter and shorter compared to guests who do not visit foreign hotels. The extent of this decrease is between 16% and 38%.

- Guests visiting the given hotel regularly book later than the guests who plan to arrive at this hotel at the first time. The length of booking window is 16% lower.
- The length of booking window is significantly different when guest do not travel alone but with multiple generations. In this case, the length of booking window is significantly longer, by 64%.

I succeeded to find a correlation by regression model calculation between the booking window length and the channels to collect information. The booking window is 19% shorter for guests collecting price information in various websites than for guests who do not do so. However, the booking people thoroughly studying opinions of guests found online have 24% longer booking window than for the ones not reading opinions of guests. These booking people were not waiting for better price, as the posts of guests convinced them.

Regression model analyses pointed out also that guests booking for weekend have 17% shorter booking window than guests not staying for weekend. However, this interval is 26% longer for peak periods than off peak periods.

The higher prices hotels of dynamic pricing offer, the higher degree of freedom they provide in terms of the modification of the date of arrival and the payment terms and conditions. There is a significant correlation between the degree of freedom and the booking window as well. For guests who pay in advance and can modify their booking have longer booking window by 53% and for guests who even do not need to pay in advance have 93% longer booking window than for guests who paid in advance and cannot modify the date of arrival. These latter rooms have the lowest price, however, terms and conditions are very strict. It is also seen that guests would like to book these rooms as close to the date of arrival as possible to decrease the risk of no show even in this way. In the sample analysed, not this was the most popular option: only the 16.2% of guests chose it. The majority, the 83.8% of the booking people are willing to pay extra fee for less strict terms and conditions regarding the date of arrival. It is not a problem for them if they have to pay for the room in advance, since they know that once they can use this room. These bookings improve the liquidity of hotels as well.

The findings of my study are identical with the study performed with the cooperation of the SiteMinder, one of the biggest companies offering sales solutions for hotels and the market research company Kantar. (SITEMINDER'S: CHANGING TRAVELLER, REPORT 2022). They asked over 8000 travellers from 10 countries. Based on their finding, almost 80% of the respondents, independently of age group, considered the most valuable option during booking the flexibility of the date of arrival and the opportunity for the cancellation of booking, and they do book accordingly. This behavioural pattern is identical to the booking behaviour of Hungarian leisure tourists.

5. CONCLUSIONS AND RECOMMENDATIONS

There were two important aspects of the analysis of room bookings, the price sensitivity and the willingness to pay extra of the participants of the Hungarian domestic tourism. On the one hand, related to my work, they can be identified as the primary target group of our sales activity, and on the other (also due to my work), I have information about them, which I would not be able to get as an external data collector. To confirm my hypotheses, I performed primary and secondary researches. The online questionnaires were completed and the secondary data were obtained in the first two years of the pandemic. In this way, the COVID-19 pandemic infiltrated my whole research, and it had a huge impact on my study. It became clear that the pandemic did not crush the desire to travel as much as it was predicted by experts. The sector reached its full recovery in several destinations (by considering the sales data of 2019 to be 100%), and this figure is even globally as high as 85-90%. However, it is detected that the demand emphases were modified: some of the factors influencing travel decisions were appreciated, and some of them played less significant role. Closeness to nature, personalised services, individual experiences concentrated into a short time of stay, services related to health preservation, and also cleaning procedures and technologies became much more important than earlier.

Based on the famous statement of Hayes and Miller, my **Hypothesis 1** assumed that if someone buys something, it is worth more for him/her than the amount he/she paid for it. I succeeded to prove this for people booking rooms. 60.8% of my sample consisting of Hungarian domestic leisure tourists would have been willing to pay with high probability even more than the amount he/she paid. The average extent of this was the 8.6% of the paid amount. I succeeded to find correlations between the willingness to pay extra, the extent thereof and personal data. Based on the findings of my research, it is the women to significantly decide a maximum room price in advance before booking, and they are the ones to state with a much higher percentage that they would not like to pay more than the paid amount.

The analysis of the extent of the willingness to pay extra revealed that it is the people with university degree (MSc, MA) and between 36-45 who would have been willing to pay the more as an extra compared to the paid amount.

However, 61.5% of the people who would not have been willing to pay more for the room paid 10-25% more than the basic room price for the flexibility of use. It is even more important that 84.6% would have been willing to pay extra for rooms with excess services. Based on the findings it is seen that the willingness to pay extra is correlated with the frequency of visits foreign hotels as leisure traveller. The more often someone travels abroad, the higher the fair price threshold for him/her is.

Recommendation:

- Even for the hotels using dynamic room pricing have significant freedom to optimise their prices; one of the possible ways thereof can be linked to the sociodemographic data of guests, which can be incorporated into booking engines as input data. *This can be efficiently operated when with the available IT tools there is an up-to-date database of the guests, which is recommended to achieve within the framework of a regular programme.*
- *This is why it is worth for the hotels to expand dynamic pricing to other services of the hotel, which should be sold as packed into the room price to increase the overall price. It is recommended to use added services which have low own costs, do not require any human resource and there is an available infrastructure for it. In this way, hotels can convince even the guests to pay extra, who would be unwilling to pay extra for the room itself.*

By assessing my **Hypothesis 2** it was proven that the willingness to pay extra is influenced by the former opinions of guests about the hotel. It was revealed that the ratio of collecting price information online is extremely high: over 92% or the respondents checked room prices online. It is the youngest age group (under 35) who collect information from multiple channels, and they practically do not even use the traditional channels. Booking people over 55 much less frequently surf online.

57% of the total sample dealt with opinions of guests in a certain level. It became clear that the younger age group, especially people under 35, put more emphasis on reading ratings by guests. This resulted in that the opinion of other guests played more dominant role in the determination of the price. It is especially true for the age group 36-45 who relied more often and more dominantly on the opinions of others to determine the fair price for them than the other age groups. Independently of age and sex, people who decided a maximum price before starting the booking process (practically determined the fair threshold for themselves) studied the opinions of guests more thoroughly, and they were separately looking for these opinions. This is also true for booking people who were not willing to pay even a single cent more.

Recommendation:

- *Booking people cannot be prevented to use various online travel agencies (OTA) and to collect information there. Compared to a single hotel, these virtual agencies have unlimited resources regarding guest access. Independently of the size of the hotel, OTAs must be used, however, any events regarding the hotel itself must be controlled if possible. I recommend even the small hotels to have an employee to treat these interfaces; not only the stocks available there but the opinions of guests as well. My research showed that there is a* *correlation between the opinions of guests and the fair price for a guest. Therefore, it is especially the rapid and professional reply to negative opinions of guests to become important, which may improve assessment and may positively influence the pricing of the hotel.*

- *The quality, accessibility and up-to-date status of the own website of the hotel plays an extremely important role if it is considered that 89.1% of the booking people checked the room prices here as well. I consider it inevitable for the hotels to create their websites with professional developers and to make possible room booking in their websites. For small hotels, with a view to cost-efficiency, I consider it suitable to use so-called semi-online solutions. This is the only way to achieve to drive the booking people from the websites of the OTAs to the own website of the hotel to decrease the commission to pay and to establish the possibility for rapid and direct communication with the guest, which is an opportunity to build trust. With this I do not state that there is no need for OTAs, however, hotels must find the balance based on stock management, which leads to the maximisation of income.*
- *Nowadays OTAs do not consider hotels as equal partners in Hungary. In Hungary, neither any professional organisation nor the competent authorities have taken any measures against OTAs regarding price parity issues and the unilateral modification of the terms and conditions of the agreements. Hotels by themselves are helpless, and results can be achieved only by a coherent action. It would be welcome to have the Hungarian Hotel and Restaurant Association, a professional organisation of several hundreds of hotels to undertake this task. I introduced the significance of opinions of guests on pricing. Nowadays, hotels do not have the possibility to openly react to the negative opinions of guests appearing on the website of the OTAs, which contain obviously false statements, to let the public receive objective information or only to remove these opinions by sending an evidence.*
- *However, every hotel has a huge advantage against the OTAs: they personally meet the guest. This opportunity should take this opportunity to convince their guests to use the own website of the hotel if they book next time, as a booking channel. By supporting this, various motivation systems can be elaborated, which can be paid from a part of the commission paid to the OTAs.*

My **Hypothesis 3** and the related research was brought by the COVID-19 pandemic. As I tried to show in the literature review, neither revenue managers nor the pieces of software used by them were prepared for the treatment of the pandemic. The analysis of the international and the Hungarian data reinforced this. Pricing was different for continents, countries and also regions. From the analysis of the data it became clear that the feeling of locked up and the restriction or the ban of travels by law only increased the desire to travel in the decreasing of the pandemic function. It was especially true for the summer of 2020 and 2021. The Hungarian hotels off Budapest, which thought that the price sensitivity of the “escaped” tourists will decrease, were right. My hypothesis was proven. In the first two years of the pandemic, the hotels considering the Hungarian domestic leisure tourists as primary target group performed an increase in the average room price in an extent significantly exceeding inflation. For every Hungarian region, average room prices increased by at least 10%, and the increase over 20% was also not rare. It was strongly contributed by that the guests having higher discretionary income and usually travelling abroad to recreate were looking for domestic targets either due to the restrictions or their fear, and they spent their money within Hungary.

Recommendation:

- *For the hotel operators it is reasonable to think over what demands the guests who basically go abroad to recreate and arrived in the first two years of the pandemic had during their stay. These should be treated as priority during the later developments. In this way it can be achieved to increase the revenue from secondary and rather tertiary target groups. Furthermore, the spending of these guests for an overnight stay was high.*
- *It is reasonable to think over the emphases in the communication of the hotel, in the messages to the guest. The pandemic reorganised and it seems that it made permanent aspects such as cleaning technologies or the quality of the cleaning agents used. Furthermore, these message types may contribute to the increase of the fair price threshold.*

The proving of my **Hypothesis 4** supported my assumption that even the high room prices determined for the peak season do have some room for increase. We have to accept the fact that every room sold could have been sold at a higher price as well. The question is only “by how much”. Even though booking people paid on average 12% more for an overnight stay for the weekend and 39% more for the same in the peak period, their willingness to pay extra did not show lower value than that of the guests arriving in the cheaper period. This is an important finding even by knowing that almost the half (47%) of the booking people arrived in the peak period.

Recommendation:

- *It is recommended for the pricing managers of every hotel to rethink the definition of peak periods year by year and to fit these periods to the guests of the hotel.* Involving few days into the peak period would result in a significant increase in the revenue.

My last hypothesis, the **Hypothesis 5** was dealing with the relationship between the length of booking window (the period between booking and arrival) and the booking person/himself/herself. Research proved that the booking window of people over 55 is longer than for the other age groups, while for people under 35, this window is shorter. The finding of the comparison based on residence showed that the inhabitants of Large towns (between 20,000 and 100,000 inhabitants) book significantly earlier than the inhabitants of other settlement groups. The booking of people who regularly travel abroad or who have been in the given hotel multiple times (they can be considered as regulars) shows a significance of inverse sign. They have shorter booking window. The joint travel of at least three generations significantly, i.e. by 64%, increases the length of booking window. In general, the length of booking window is the projection of the recent accelerated world. The time between booking and arrival is very short, the 75% of the bookings for a given day arrive in the last two months. The most significant change takes place 2-4 weeks before the day of arrival. The number of weekly bookings is the highest in these three weeks. Expected revenue can be determined with less precision from the long-term booking data than 10-15 years ago. This makes the planning of the liquidity of hotels more difficult, which is accompanied with a serious risk for the hotel operators.

Recommendation:

- *Independently of the size and the clientele, I consider it necessary for the management to establish booking methods treating the payment for rooms and the possibility of the modification of the date of arrival with various flexibility, which should be available for booking based on the occupancy of the hotel.*
- *Revenue managers must get used to the thought that 2 months before the peak periods he/she may see his/her own hotel as empty or of very low occupancy. Based on the research findings, on the one hand, I do not recommend them to panic. On the other, they must avoid the reduction of price by all means. In this way, they would seriously violate the feeling of fairness for the guests already booked and the system of price warranty. It is better to make gestures to increase occupancy, which, instead of reducing the price, offer the room with services that do not cost the hotel money, or cost only very little, in order to improve occupancy. The classic saying "the empty room is the most expensive room" should be forgotten, since uneconomical rooms are the most expensive ones.*

The introduced findings of my research can be immediately used by hotel experts in practice in two fields. On the one hand, professionals dealing with room pricing can segment their regulars' or even broader database or divide such databases into smaller groups for different room pricing. On the other hand, the sales and marketing specialists are supported by the findings of my thesis to select services based on the previously mentioned guest segmentation regarding the timeliness and validity of the messages sent to the guest. It is definitely worth continuing the research, since in addition to the continuously changing consumer habits, newer and newer price differentiating factors linked to the customers can be mapped.

6. NEW AND NOVEL RESULTS OF THE DISSERTATION

1. Based on the processing and synthesis of Hungarian and international literature, I have created a complex diagram presenting the current research areas of dynamic pricing, which are the causes of price changes, inventory management, condition systems and price fairness.

2. Based on the STR database, I prepared a situational assessment of the pricing trends used during the COVID-19 pandemic by analysing the regional average room prices globally, in Europe and within Hungary. I determined the winner regions of this period within Hungary.

3. By my research I proved that there is a correlation between the sociodemographic data of the Hungarian domestic leisure tourists and their willingness to pay extra. I succeeded to quantify the statement of Hayes and Miller for the sample group.

4. By my research I proved that the willingness of pay extra of the Hungarian domestic leisure tourists is influenced by the opinion of guests read online, and a significant correlation can be seen between the extent of influence and the age of the booking person. However, I also proved that the previous visit(s), i.e. the former experience of the booking person do(es) not influence the willingness to pay extra.

5. By my research I supported that the willingness to pay extra and the extent thereof are independent of the amount paid for the room.

6. By my research I proved that the time between booking and the arrival of the guest (the so-called booking window) and the personal data of the guest have significant correlation which applies for age and residence as well.

SUMMARY

One of the most important consequences of the digital revolution of the previous two decades was the right availability of highly developed IT devices and the pieces of software thereof even for ordinary people. They are widely used and even portable, and they provide enormous amount of data. Due to this, hotels needed to discard the classic dynamic room pricing models. These models provided room prices for the future by analysing historical booking processes. Revenue managers assumed that they know many data about the potential guests through the expensive IT devices available that time only for the hotels, and the guests know only limited information about the hotel. This world, however, has ceased to exist. The potential guests are well-informed, and what is the most important, they expect the hotels to consider them as equal partners. These potential guests intend to join the dynamic pricing process, and the term "price fairness" has become dominant. However it has to be noted that the fine tuning of the dynamic pricing model of a perishable asset bounded from above, i.e. the hotel room is an eternal task for hotel operators. Every year, higher revenues must be achieved by the continuous sales of the same rooms, by finding newer and newer price influencing input data one of the most important of which is still the newer and newer information related to customers.

As a practitioner in the field of hotels, I selected a research topic the findings of which can be incorporated into the structure of the pricing models and which can improve the profitability of hotels.

In this operating environment, my purpose was, by performing primary and secondary research, to assess the behavioural pattern, willingness to pay and willingness to pay extra by a Hungarian tourist upon a domestic leisure travel during and before booking. I built the formulation of my questions and designed my hypothesis and launched my research based on the above, however, the COVID-19 pandemic became another fundamental cornerstone. Upon selecting my research topic, neither the tourism sector nor any other industry have faced what this worldwide pandemic claiming millions of lives is like, which swept through world economy like a hurricane. I felt it my duty to formulate my questions and design my research by assessing these effects as well.

During my secondary research work, I reviewed the most important terms such as tourist, tourism or the system of tourism. I summarised the future challenges to be faced by the sector, and I pointed out why new phenomena, such as overtourism, can make possible the amendment of the term "tourism" which has been accepted for over 30 years.

I located the hotels in the system of commercial accommodation, and I introduced their significance in this structure. During literature review, I revealed the importance of hotel yield management and

the relationship thereof with dynamic pricing. After the introduction of the formation and the pathfinding of dynamic pricing, I summarised and classified the directions of research in this field, which covers four fields of research: the reasons of the change of room prices, stock management, the question of price fairness and the assessment of the criteria of dynamic pricing. I collected the already revealed pitfalls of dynamic pricing models, with a special attention to the phenomena linked to reference price. I summarised the development opportunities the need for which and the deficiencies of the systems were revealed right by the COVID-19 pandemic. Although modern RM systems and thus the pricing models collect data not only from the analysis of historical events, but by analysing multiple future outputs they try to provide the revenue managers with the best possible alternative, it has become clear that they have not been prepared for the handling of a situation caused by this pandemic. I supported this statement of the researchers of the field by introducing several research results analysing the room pricing methods of this period. I consider as a dominant part of my secondary research that based on the different available Hungarian and international databases, I processed and synthesised 3 of the most important hotel industry indices of the two years of the pandemic, i.e. the average room price, utilisation and RevPAR index globally, continentally and in the level of Hungary as well. The findings of this research reinforced on the statement that there was no unified solution for the room pricing method during the pandemic. The unpreparedness of the RM systems led to that the accountable managers chose trends of different directions in the given continent or even within a country. The analysis of the data confirmed my hypothesis that in the first two years of the pandemic, the price sensitivity of the Hungarian leisure travellers decreased upon the selection of a domestic travel destination. This is especially true for the summer of these two years.

I introduced the structure of yield management system, the process of strategy drawing and the importance of segmentation. I also specified the classification of hotels and the segmenting effect thereof. Finally, in addition to the sales channels, by highlighting the Online Travel Agencies (OTA) having an indispensable role in pricing and forming a price strategy, I analysed the dominant and controversial role of OTAs.

The basis of my primary research was the processing of an online questionnaire completed by 1073 Hungarian guests regularly visiting Hungarian wellness hotels. The data collection by the questionnaire took about 1.5 years due to the travel limitations and lock-down due to the pandemic. Although the long data collection period was not favourable due to the prolongation of writing my dissertation, it significantly increased the relevance of the data. In this way, the booking of the respondents of the questionnaire came from every stage of the pandemic: from the period with full ban on travels, when the hotels could be visited with limitations and also without any limitations on travels.

During the processing of the questionnaires, I basically performed chi-square tests with standardised residual analyses, variation analysis and logarithmic regression model calculations. The processing and the evaluation of the questionnaire was subordinated to the analysis willingness to pay of the guests. The axiom of Hayes and Miller proved to be correct for the Hungarian leisure travellers as well. If a customer pays for a service, for him/her this service is worth even more than the amount he/she paid for it. The question is only "by how much". A dominant finding of my research is that this is on average the 8.6% of the amount paid. I succeeded to determine guest segmentation parameters making possible the establishment of smaller groups of Hungarian leisure travellers, which can result in more optimised offer and communication. The root thereof lies in the Big Data revolution, the significance of which was pointed out by Iyer et al. (2015).

During searching for segmentation factors, it was proven that the sociodemographic data of the guests (sex, school qualification) and the frequency of visiting hotels abroad, groups can surely be established to set price categories.

Another dominant statement of my dissertation is that it is worth interpreting the dynamic pricing of rooms in a broader sense. There may be significant reserves in pricing and thereby the increase of revenue if hotels market their rooms together with extra services (presumably this is true for any other commercial accommodation as well).

The use of digital space and the use of online interfaces has become dominant for Hungarian leisure tourists as well. People under 35 use almost exclusively online interfaces to get information about potential hotel opportunities, and even the older generations use preferably this option. To determine the fair room price, more or less every age group uses the guest evaluations of the given hotel, whether it is numeric or text-based. It was also proven that these evaluations play a significant role to decide the fair price. In this way, the positive or negative messages of the former guests of a hotel in the OTA or any other social media have become the input data of dynamic room pricing.

The price change fitted correctly to booking graphs is a significant room price revenue reserve as well. It is worth for the operators to be calm, since a significant part of bookings is realised very close to, only few weeks before the arrival.

During the research it became clear that the hotels must treat the Hungarian leisure tourists as equal partners, which must be ensured even before the arrival of the guests during the communication with them. I consider the most important research pathways of the dynamic pricing of hotel rooms to be the price fairness. The dominant conclusion of my research is that fair price does not equal to low price, and the margin of fairness can be increased in the wide range of customer groups even without extra costs for the operator.

UNIVERSITY of DEBRECEN

UNIVERSITY AND NATIONAL LIBRARY
UNIVERSITY OF DEBRECEN
H-4002 Egyetem tér 1, Debrecen
Phone: +3652/410-443, email: publikaciok@lib.unideb.hu

Registry number: DEENK/98/2023.PL
Subject: PhD Publication List

Candidate: Lajos Róbert Fazekas
Doctoral School: Károly Ihrig Doctoral School of Management and Business
MTMT ID: 10067992

List of publications related to the dissertation

<u>Articles, studies</u> (6)

1. **Fazekas, L. R.**: Challenges of the Development of Information Technology in the Hotel Sector: Technological Improvements, Sales and Marketing Channels and the Changing Consumer Basis.
   Apstract. "Accepted by Publisher" (-), 1-23-, 2023. ISSN: 1789-221X.

2. **Fazekas, L. R.**: Room booking habits and room price sensitivity of Hungarian domestic leisure tourists during Covid.
   Economic. közlésre elfogadva (-), 1-10-, 2023. ISSN: 1585-6216.

3. **Fazekas, L. R.**: Hozammenedzsment és ároptimalizáció a hotelszektorban.
   Jelenkori Társadalmi és Gazdasági Folyamatok. 16 (1-2), 123-135, 2021. ISSN: 1788-7593.
   DOI: http://dx.doi.org/10.14232/jtgf.2021.1-2.123-135

4. **Fazekas, L. R.**: Dinamikus árazás és stratégiai fogyasztók: kihívások és együttműködés a hotelszektorban.
   Economica. 11 (1-2), 13-20, 2020. ISSN: 1585-6216.
   DOI: http://dx.doi.org/10.47282/economica/2020/11/1-2/5750

5. **Fazekas, L. R.**: Munkaerő ösztönzés Debrecen - Hajdúszoboszló - Hortobágy - Tisza-tó kiemelt turisztikai régió magas kategóriájú szállodáiban.
   Acta Carolus Robertus. 9 (1), 65-80, 2019. ISSN: 2062-8269.
   DOI: http://dx.doi.org/10.33032/acr.2019.9.1.65

UNIVERSITY of DEBRECEN

UNIVERSITY AND NATIONAL LIBRARY
UNIVERSITY OF DEBRECEN
H-4002 Egyetem tér 1, Debrecen
Phone: +3652/410-443, email: publikaciok@lib.unideb.hu

6. **Fazekas, L. R.**: Hotel és Árazás a Közösségi Hálók Világában: Értékteremtés a Digitális Gazdaságban.
   Gazdálkodás. 62 (6), 566-570, 2018. ISSN: 0046-5518.

The Candidate's publication data submitted to the iDEa Tudóstér have been validated by DEENK on the basis of the Journal Citation Report (Impact Factor) database.

04 April, 2023