A STUDY REGARDING THE EVOLUTION OF OCCUPANCY RATE IN BRAȘOV COUNTY

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Abstract: *The analysis of occupancy rates for accommodation structures of a touristic destination is a significant element in deciding upon the best strategy for further development. Moreover, occupancy rate is a fundamental instrument for every accommodation unit regarding the possibility of revenue managers to quantify the profitability of the structure administrated and to identify the most appropriate solutions for maximizing the income. The present paper illustrates a 9-year analysis of the occupancy rates for accommodation structures in Brașov county and a forecast for this indicator for the next two years, 2019-2020. The study raises an alarm on the evolution of occupancy rate for Brașov county and suggests some improvement for increasing it in the future.*

Keywords: *tourism, accommodation units, occupancy rate, hotels, forecasting, strategies, Brașov touristic destination*

1. Introduction

Like in any other economic activity, tourism analysis of the current situation and strategies proposed for the future are based on a complex set of indicators. One of those indicators is the occupancy rate which quantifies the success attained by an accommodation structure. Thus, its utmost importance is undoubtable.

There are numerous studies focusing on occupancy rate analysis. The study of Abdullah and Hamdan focuses on the internal success factors of hotel occupancy rate and their relationships with services provided by the hotel (Abdullah and Hamdan, 2012). Other researchers analyse the net occupancy rates of bed-places in the hotel industry (Baldigara and Koić, 2015; Succuro and Boffa, 2010). An important topic is also the efficiency in the hotel industry and there are many studies addressing this issue. Here we can mention the Poldrugovac, Tekavcic and Jankovic research, where the authors state that *"hotel managers usually measure their success with classic performance measurement tools like revenue per available room, occupancy rate, return on investment and similar indicators"* (Poldrugovac at al., 2016). Recent studies examine

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empirically the use of two time series models, BoxJenkins and exponential smoothing that are used for forecasting hotel occupancy rates (Andrew et al., 1990). Moreover, the possibility to use time-series models incorporating several tourism big data sources, including search engine queries, website traffic, and weekly weather information, in order to construct an accurate forecasting model of weekly hotel occupancy for a destination, is approached in a study presented by Pan and Yang (Pan and Yang, 2017).

Regarding the subject of hotel brand quality, in terms of guest satisfaction, we can mention Bǎltescu's study, where brand size was positively linked to occupancy percentage, thus suggesting that lodging customers might use brand size as a quality cue (Bǎltescu, 2009).

2. Occupancy Rate in Braşov County in 2018

For Romania, the occupancy rate for the accommodation facilities has reached only 30% in the year 2018 (https://gonext.ro/analiza-completa-a-turismului-romanesc-in-functie-de-numarul-de-locuri-de-cazare-si-de-gradul-de-ocupare). This indicator has been widely studied and there were proposed numerous variants for a formula to calculate it. According to Snack et al. (2001, p. 491), a formula to calculate the occupancy rate, based on overnight stays and accommodation capacity, is:

$$OR = \frac{ONS}{ACM_{max}} \times 100 \qquad (1)$$

where:
   OR – Occupancy rate
   ONS (overnight stays) – the number of overnight stays during the reference period
   ACM_{max} (Accommodation Capacity per Month) – Total bed-places in
          accommodation establishments available in a given month

For the particular case of Braşov county, we calculated the occupancy rates for the year 2018, based on the formula (1) and data for *ONS* and *ACM_{max}* from the National Institute of Statistics (http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table). In table 4, which contains the values that were obtained, we can observe that the maximum value for occupancy rate did not exceed 56.29%, which was reached by hotels in august 2018. However, the other maximum values are far from the optimal values of occupancy rate, as we can read from table 4 that the occupancy rate reaches only 21,84% for hostels, 22,87% for apartment hotels, 36.73% - motels, 28,71% - touristic villas, 26,93% - touristic cottages, 34,72% - bungalows, 9,22% - vacation villages, 10,23% - camping, 2,05% - touristic huts, 21,29% - camps for pupils and preschools, 28.43% - touristic pensions and for agritourist pensions 24.18%.

According to a study conducted by the hotel consulting company Fivestar Hospitality, the break-even point for the occupancy rate of a hotel is of approximately 40% (https://www.capital.ro/hotelurile-de-3-stele-din-bucuresti-au-cazut-sub-pragul-de-rentabilitate-130979.html). Thereby, we can observe that for the hotels in Braşov

county, this value was exceeded in 2018 only in the following months: February (41,50%), July (46,08%), August (56,29%) and September (43,01%).

Analysing the data registered for the year 2018 in other European countries, we discovered that during the 3rd quarter of 2018, the highest occupancy rate of bedrooms in tourist accommodation in the EU was observed in Malta in August (90.2%) and the average occupancy rate for the hotel industry in Europe, from July to September 2018, was 63,2% (https://ec.europa.eu/eurostat/statistics-explained/index.php /Tourism_ statistics_-_occupancy_rates_in_hotels_and_similar_establishments).

Table 1

Occupancy rate (%) for Brașov county in 2018 per accommodation type

Nr.	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
1.	39.64	41.50	26.18	28.65	30.72	35.84	46.08	56.29	43.01	37.48	32.27	36.72
2.	11.98	14.61	14.19	11.97	13.05	13.87	13.74	21.84	17.93	15.33	15.47	15.90
3.	7.07	22.87	3.91	3.59	0.62	0.00	0.00	0.00	2.56	4.47	2.31	2.48
4.	15.23	15.94	7.55	13.21	13.17	16.49	24.03	36.73	32.72	17.25	18.03	15.38
5.	24.14	21.55	12.27	13.44	14.88	15.48	22.19	28.71	21.52	16.38	15.13	21.34
6.	12.46	14.37	8.38	9.79	11.86	11.74	20.83	26.93	16.87	11.84	10.03	12.19
7.	31.27	34.72	17.96	14.49	11.86	10.62	25.81	31.41	21.58	14.60	6.89	15.31
8.	4.44	5.06	2.82	4.19	4.14	4.53	4.44	8.66	5.86	3.23	3.31	9.22
9.	0.00	0.00	0.00	0.00	0.00	4.22	7.23	10.23	1.80	0.00	0.00	0.00
10.	0.81	0.89	0.74	1.01	1.61	1.56	1.81	2.05	1.88	0.71	0.76	1.08
11.	5.81	0.00	10.58	6.67	1.48	6.80	10.97	21.29	0.00	0.00	3.33	3.87
12.	18.64	17.74	13.24	14.56	15.49	17.26	22.35	28.43	21.89	17.69	14.98	20.58
13.	13.54	12.07	7.67	10.79	10.92	11.86	18.43	24.18	16.06	13.20	10.27	17.35

List of indices for each accommodation structure type   Table 2

Types of tourist accommodation structures	Nr.	Types of tourist accommodation structures	Nr.
Hotels	1.	Vacation villages	8.
Hostels	2.	Camping	9.
Apartment hotels	3.	Touristic huts	10.
Motels	4.	Camps for pupils and preschools	11.
Touristic Villas	5.	Touristic pensions	12.
Touristic Cottages	6.	Agritourist pensions	13
Bungalows	7.		

Source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table (authors' calculations)

Therefore, these observations suggested that we should analyse more carefully the evolution of occupancy rate for hotels in Brașov county. In this respect, we extended the analysis to a 9-year interval, from 2010 to 2018. Using data from the National Institute of Statistics and the formula (1), we obtained the occupancy rate for the desired period of time. The evolution of occupancy rates for the time period considered is represented

in Figure 1. Figure clearly points out that there is a prominent seasonal trend which governs the occupancy rates for hotels in Braşov county. As we can read from the graph, the differences between occupancy rates in different months of the year have increased, while the trend seems to stabilize and follow a standard seasonal pattern.

Source: *raw data from* http://statistici.insse.ro:8077/tempoonline/#/pages/tables/insse-table
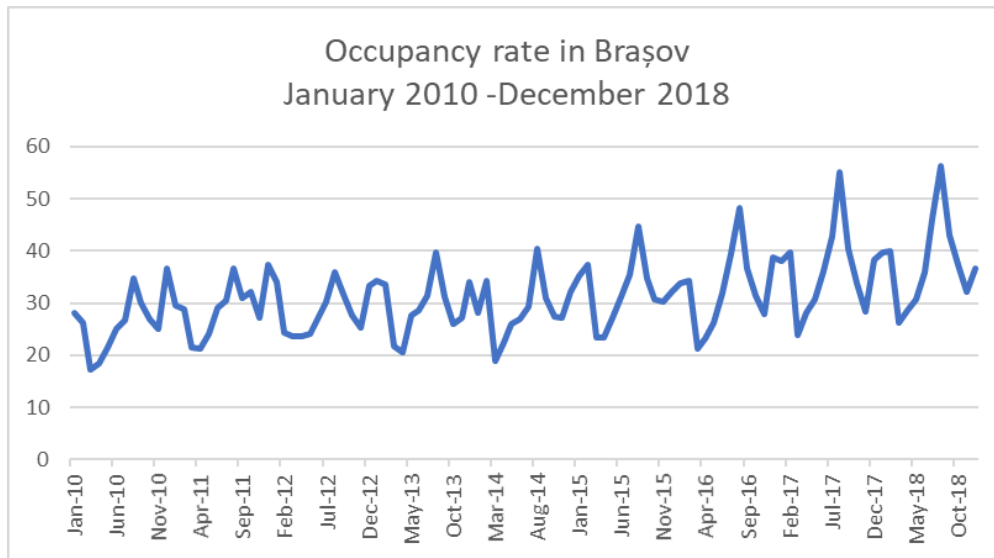
Fig. 1. *Occupancy rate trends in Braşov county (hotels)*

From 2010, when there were two seasonal peak points of a similar value in the year, we can identify that for the summer months, the increase has been considerable higher than the one in the winter season, as the first reached almost the double of the second one. The growth of the occupancy rates for hotels is significant throughout the entire year. This demonstrates that the growth in popularity for Braşov county has improved at a significant pace, since the number of tourists increased enough to determine a raise in the occupancy rates for hotels. Admitting that the trend of occupancy rates for hotels in the considered region is obviously increasing, the matter of future development is urgent.

3. The Evolution of Occupancy Rate in Hotels from Braşov County in the Period 2010-2018 and the Forecast for 2019-2020

Based on data from the past five years, recorded each month from January 2014 to December 2018, we inferred a monthly forecast for the occupancy rates for the next two years, 2019 and 2020. We used the forecasting tool from *Excel* for generating the desired forecast (with a 90% trust interval), which is represented in the graphic in Figure 2.

Analysing the plot in figure 2 we observe that although the trend seems to remain ascendant for the next two years, it is not likely to exceed 60% as the maximum occupancy rate forecasted is 53.07% for the month August 2020, and the upper bound for the same month is 61.96%. Since the values for other touristic areas in Europe are significantly higher, the evolution of occupancy rates in hotels can be improved.
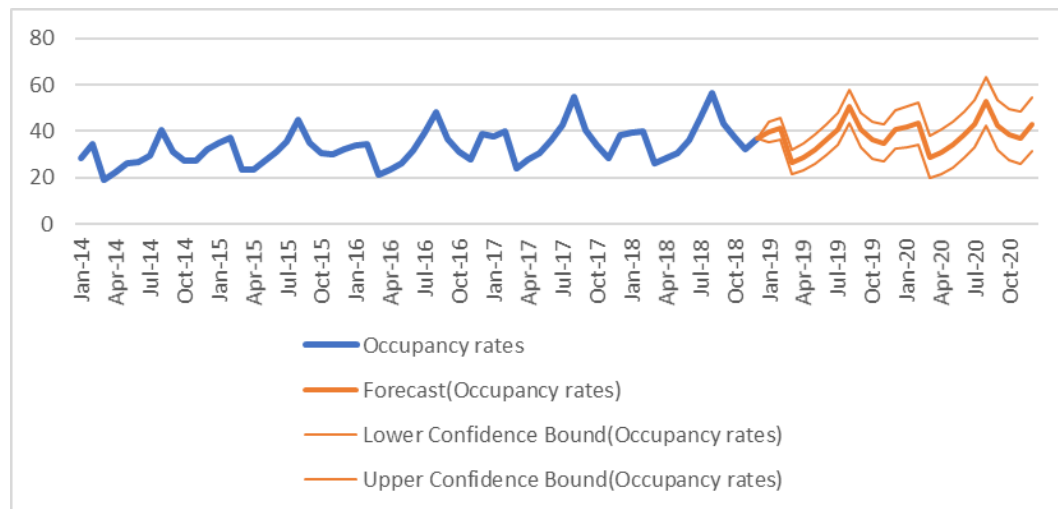
Fig. 2. *Forecast for the years 2019-2020 of occupancy rate in Brașov county (hotels)*

Moreover, if we analyse the confidence interval which is of 90% trust, we can observe that even a variation among the limits of this interval might not necessarily mean an increasing trend. Since the occupancy rate is in constant change, although the graphic seems to become regular, we cannot conclude that the evolution is necessarily following a particular pattern. Even if a steady growth in the occupancy rates for hotels has positive effects on tourism in general, the rate of this increase will have to be enhanced. Moreover, the situation analysed corresponds to the case of *Hotels* type of accommodation, which holds the highest values for 2018 and thus is one of the best cases in Brașov county. Thus, the fact that the occupancy rate is increasing rather slowly raises an alarm signal for all the accommodation structures in Brașov touristic region.

4. Conclusions

Following the analysis, we found that the maximum value for occupancy rate did not exceed 56.29% for hotels in 2018. For the other types of accommodation structures the occupancy rate varies between 0% and 36.73%, which is visibly low and can certainly be improved. The 9-year analysis shows that the situation of occupancy rates in Brașov had a positive trend as it has significantly increased from 2010. Moreover, from 2010, a considerable difference between the two seasonal peaks can be observed. The forecast for the next two years shows that although there is likely that the increasing trend will be maintained, the growth is not expected to be highly significant, thus leaving space for improvement.

Our suggestions for improving the current situation are as follows: on the one hand, to use some Business Intelligence solutions for hotels in Brașov touristic destination, for example Revenue Management, that will allow an increase in the income and the maximization of the occupancy rate for every unit of accommodation. On the other hand, it is compulsory to identify some strategies that will allow the prolongation of the touristic season which will assure a higher occupancy rate for all accommodation structures.

In our opinion, an accurate evaluation of the touristic potential of Brașov county along

with identification of the resources which will allow an increase in the attractivity throughout the entire year is highly important for maintaining a constant touristic flow of visitors, who will occupy all the available accommodation and thus increase the occupation rate.

References

Abdullah, A.A., Hamdan, M.H., 2012. *Internal Success Factor of Hotel Occupancy   Rate. International Journal of Business and Social Science* Vol. 3 No. 22 [Special Issue – November 2012], pp. 199-218.

Andrew, W.P., D.A. Cranage, and C.K. Lee. 1990. Forecasting Hotel Occupancy Rates with Time Series Models: An Empirical Analysis. Journal of Hospitality & Tourism Research, 14 (2), pp. 173-182.

Baldigara, T., Koić, M., 2015. Modelling Occupancy Rates in Croatian Hotel Industry. *International Journal of Business Administration*, Vol. 6. No. 3, pp. 121-131.

Băltescu, C.A., 2009. Challenges and Oportunities Facing Brand Management in the Lodging Industry. *Bulletin of the Transilvania University of Braşov*, Vol. 2(51), Series V, pp. 67-74.

CAPITAL Journal : *Hotelurile de 3 stele din Bucureşti au căzut sub pragul de rentabilitate.* Available at: <https://www.capital.ro/hotelurile-de-3-stele-din-bucuresti-au-cazut-sub-pragul-de-rentabilitate-130979.html> [Accessed 12 February 2018].

goNext.ro : *Analiza completă a turismului românesc în funcţie de numărul de locuri de cazare şi de gradul de ocupare*. Available at: <https://gonext.ro/analiza-completa-a-turismului-romanesc-in-functie-de-numarul-de-locuri-de-cazare-si-de-gradul-de-ocupare> [Accessed 12 February 2018].

Institutul Naţional de Statistică: *Tempo Online Database*. Available at: <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>   [Accessed 12 February 2018].

Pan, B., Yang. Y., 2017. Forecasting Destination Weekly Hotel Occupancy with Big Data. *Journal of Travel Research.* Volume: 56 issue: 7, pp.957–970. Available at: <https://doi.org/10.1177/0047287516669050>

Poldrugovac, K., Tekavcic, M., Jankovic, S., 2016. Efficiency in the hotel industry: an empirical examination of the most influential factors*. Economic Research-Ekonomska Istraživanja,* 29:1, pp.583-597, DOI: 10.1080/1331677X.2016.1177464

Snack, O., Baron, P., Neacşu N., 2001. *Economia turismului*. Bucureşti: Editura Expert.

Succurro, M., Boffa,F. 2010. *Search Cost Reduction Increases Variation In Hotels Occupancy Rate: A Theoretical And Empirical Analysis*. Working Papers 201020, Università della Calabria, Dipartimento di Economia, Statistica e Finanza "Giovanni Anania" – DESF, pp. 1-24

Tourism statistics - occupancy rates in hotels and similar establishments. Available at: <https://ec.europa.eu/eurostat/statistics-explained/index.php/Tourism_statistics_-_occupancy_rates_in_hotels_and_similar_establishments> [Accessed 12 February 2018].