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**Article**

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**The Determinants of Small and Family Owned Hotel Room Rates**

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## The Determinants of Small and Family Owned Hotel Room Rates

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### ABSTRACT

#### Purpose

Research explores the price determinants of the small and family owned hotels, as a specific segment of the overall hotel industry.

#### Design/methodology/approach

Hedonic pricing model has been designed to analyse the impact of 19 price determinants on 140 small and family owned hotels in Croatia, leading destination in Southeastern /Mediterranean Europe. The choice of variables follows recent literature, while data have been obtained from an official catalogue of small hotel and family hotel association.

#### Findings

Findings suggest that (1) the highest impact on small hotel prices is generated by hotel core facilities and attributes (category, wellness facilities, inner pool, elevator, mini bar, internet connection); (2) location same as following variables (children day-care and pets allowed) does not have significant impact on small hotel prices. Additionally, research results demonstrate that there are differences, considering price determinants, between small and family hotels and regular size hotels.

#### Research limitations/implications

The main limitations of this study are reliance on catalogue data and mostly dummy variables. Despite those shortcomings, findings provide valid and encouraging starting point for any future analysis of differences between hotels market segments. Results are beneficial to researchers and practitioners especially those involved in the strategic planning process in the hotel industry

#### Originality/value

Despite they are a specific segment of the overall industry, the price determinants of small and family-owned hotels have not been addressed in research literature sufficiently. This research addresses those shortcomings and provides the basis for their future analysis. Furthermore, it explores the impact of two variables, which to our knowledge have not been discussed so far.

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### 1. Introduction

Hotel product is a complex compendium of different public and private attributes that generate potentially uncontrolled impact on its price (Rigall-I-Torrent et al. 2011). Research on price determinants consequently decrease market uncertainty and provide investiture with the desired sense of control. The concept of hotel product and price determinants has been widely explored. Some of the researchers focus more on public (Rigall-I-Torrent and Fluvia, 2007; Chen and Rothschild, 2010; Rigall-I-Torrenta et al. 2011; Schläpfer et al. 2015), while others on private determinants influencing hotel prices (Espinete et al. 2003; Monty and Skidmore, 2003; Thrane, 2005; Hasegawa, 2009). Small and family-owned hotels (S&F),

mostly initiated and managed by entrepreneurs who are owner-managers and families who play the significant role in modifying hospitality opportunities, as a predominant in emerging sectors in developing countries, are not widely explored (Getz and Petersen, 2004; Chang, 2011; Banki and Ismail, 2015). This research aims to address that research gap. With the application of hedonic regression model, the influence of 19 different variables on prices of 140 S&F hotels in Croatia has been tested. Following the analysis of the comprehensive set of price determinants, the obtained coefficients have been compared with previously conducted research results for regular size hotels to analyse if there are differences between these two hotel segments. After careful consideration, S&F hotels in Croatia have been chosen since Croatia is leading tourism destination in South-eastern/Mediterranean

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Europe (UNWTO, 2016).

**2. Literature review**

In spite of the relatively large body of literature, most of the research focuses on experimentation with sample and method rather than with different segment of hotel industry including small and family-owned enterprises. Most recently, Sainaghi (2016) explores the factors influencing hotels performances. He has demonstrated how in Milan, hotel prices are mostly affected by number of rooms, number of employees, number of employees per room, and years since the last refurbishment. Location is proved as a critical determinant of hotel price with potential to compensate disadvantages in the strategic positioning. Pawlicz and Napierala (2016) have made similar conclusions regarding location (vicinity of the city centre and international airport). They are motivating hotel managers to use spatial analysis of room rates when setting up competitive hotel prices. Falk and Hagsten (2015) deliver a new perspective to hotel price – location study. In their research, the nonlinear relationship has proved how the growth of establishments is significantly higher for smaller and younger hotels, while hotels located near city centre exhibit substantially higher growth rates and prices. Lee (2011) explored changes in hotel prices concerning significant indicators of overall economic and tourism development.

With the application of volatile clustering on time series data in Singapur, he establishes evident positive interrelation between hotel prices and total inbound tourism and national economic performance; concluding how neighbouring countries terrorist activities generate potentially harmful, while the volatility of rates positive impacts on hotel room rates. Hung et al. (2010) focus on different price segments with the application of quantile regression analysis. In case of Taiwan, they proved how a number of employees and hotel age significantly influences only high price quantile hotels. In case of New York hotels, Zhang et al. (2011) verify hotel location and room quality as price determinants and highlight variety of attributes that differ significantly among hotel segments. Guizzardi et al. (2017) focus on price trajectories in Milan to show how price levels are explained by a variety of structural determinants, including booking, room quality, service, competition, seasonality and events. Assaf et al. (2017), Masiero et al. (2015) and Corgel et al. (2013) give the shift away from "standard" price determinant analysis. Assaf et al. (2017) focus on identification of critical external forces

influencing hotel performances and consequently revenues and prices. By quantifying linkage between education, governmental support, disposable income and tourism arrivals with hotel performances, they have stressed out the need for hotel providers to develop strategies to take cognisance of the key drivers and barriers to enhance hotel performances in changing global tourism sector. Masiero et al. (2015) focus on establishing interrelations between fundamental travel characteristics and price paid to book room. This relatively sociological approach to price determinants in recent literature is followed by emerging papers on other types of accommodation like listings on Airbnb.com in Wang and Nicolau (2017), exploration of methodological approaches like geographically weighted regression in Zhang et al. (2011), and impacts of different macroeconomic aggregates like currency exchange rates in Corgel et al. (2013).

**3. Research**

**3.1. Data and Variables**

The data for this study have been taken from official Catalogue published by National Association (2017) of small and family-owned hotels in Croatia. The Catalogue is structured in sixteen paragraphs, containing a list of 140 hotels– all included in this research. Hotels in catalogue represent the homogenous group, which is a precondition for application of hedonic pricing method (HPM) (Thrane, 2005). Most of the hotels in the sample are three or four stars rated; however, differences in categories in contests of S&F hotels are not that substantial. S&F hotels do not have a large number of bedrooms, therefore; they usually focus on service quality by providing some of the facilities that hotels in upper class have. It is expected that only those variables that provide a significant impact on overall hotel service by changing it substantially will be recognised as price determinants. Concerning the variable selection we follow previous studies: Hung et al. (2010) regarding the price and price treatment; Israeli (2002), Chung and Kalnins (2001) and Soler and Gemar (2016) regarding hotel characteristics and their expected impacts; and Thrane (2005) and Schamel (2012) regarding hotel essential characteristics. Considering specifics of S&F offer, the differences between the effect of the indoor and outdoor swimming pool and additional services like children day care and pets allowed in the hotel have been included in this analysis. To our knowledge, latter two variables have not been addressed in research literature so far.

**Table 1.** Variable and brief descriptions

ATTRIBUTE – CODE	Variable	Description
TEL	Telephone in bedroom	Dummy variable (No=0, Yes=1)
INT	Internet connection	Dummy variable (No=0, Yes=1)
TV	TV in bedroom	Dummy variable (No=0, Yes=1)
SAT TV	Satellite TV in the bedroom	Dummy variable (No=0, Yes=1)
CH	Central heating	Dummy variable (No=0, Yes=1)
AC	Air conditioning	Dummy variable (No=0, Yes=1)
MB	Mini bar in the bedroom	Dummy variable (No=0, Yes=1)
E	Elevator	Dummy variable (No=0, Yes=1)
REST	Restaurant a la carte	Dummy variable (No=0, Yes=1)

CONF	Conference facilities	Dummy variable (No=0, Yes=1)
CHIL	Children day-care	Dummy variable (No=0, Yes=1)
ISWIM	Inner swimming pool	Dummy variable (No=0, Yes=1)
OSWIM	Outside swimming pool	Dummy variable (No=0, Yes=1)
WELLNESS	Wellness centre	Dummy variable (No=0, Yes=1)
PP	Private parking	Dummy variable (No=0, Yes=1)
GP	Garage parking	Dummy variable (No=0, Yes=1)
PET	Pets allowed	Dummy variable (No=0, Yes=1)
BEACH	Hotel beach	Dummy variable (No=0, Yes=1)
CAT	Hotel category	Number of stars
PRICE	Room price	Average room rate for a double bedroom
LnPRICE	lnRoom price	Log price
*LOCATION	Hotel location (region 1-10)	Regions: (1= Istria, 2= Kvarner, 3= Zadar, 4=Sibenik, 5= Split, 6= Dubrovnik, 7= Lika and Karlovac, 8= Zagreb, 9= Central Croatia, 10= Slavonia

**3.2 Methodology**

HPM – Hedonic Pricing Model for small and family-owned hotels

HPM is revealed preference method seen as a foremost technique for measurement of the effects of different individual characteristics (determinants) on hotel price (Kuminoff et al. 2010; Mandić, 2017). HPM is based on Lancaster's (1966) new approach to consumer theory and has been inaugurated by Rosen (1974). Last decade, we witnessed its application in the context of the tourism industry (Thrane, 2005; Rigall-I-Torrent and Fluvia, 2007; Fu Chen and Rothschild, 2010; Kuminoff et al. 2010; Juaneda et al. 2011; Schläpfer et al. 2015).

An appropriate functional form of the regression model has received a lot of attention in the HPM literature (Espinet et al. 2003; Thrane, 2005; Zhang et al. 2011). Most of the researchers use the log-linear form that requires the dependent variable to be logarithm (hotel price). This approach enhances coefficient interpretation as a percentage change in the dependent variable associated with one unit increase in the independent variable (Rigall-I-Torrent et al. 2011; Zhang et al. 2011; Schläpfer et al. 2015). Dummy coefficients do not permit this straightforward interpretation (Thrane, 2005). Therefore, the percentage difference between the analysed variables and the reference category is obtained by taking the antilog of the coefficient minus one (Palmquist, 2005).

The basic hedonic log-linear model to be estimated, incorporating all independent variable is as follow (Baranzini et al. 2010; Schläpfer et al., 2015):

$$(1) \ln(P) = \alpha + \beta_1 TEL + \beta_2 INT + \beta_3 TV + \beta_4 SAT TV + \beta_5 CH + \beta_6 AC + \beta_7 MB + \beta_8 ELE + \beta_9 REST + \beta_{10} CONF + \beta_{11} CHIL + \beta_{12} ISWIM + \beta_{13} OSWIM + \beta_{14} WELLNESS + \beta_{15} PP + \beta_{16} GP + \beta_{17} PET + \beta_{18} BEACH + \beta_{19} CAT + \varepsilon$$

In this model hotel price (LOGPRICE) is seen as the dependent variable, while all the other variables in Table 1 are independent. The model has been estimated in STATA 13.0.

**3. Results**

Considering the heterogeneity of a tourism product, it is reasonable to question the impact of different variables on its price. Table 2 lists the log-linear hedonic price model analytical results. The variables *phone (PH)* and *television (TV)* have been excluded from the sample (all hotels have them; therefore they cannot be seen as variables in the econometric sense). Mean VIF value of model with two excluded variables was 1.33, indicating that multicollinearity can be eliminated as a problem (Hung et al. 2010; Schläpfer, et al. 2015). Visual inspection of *rvf-plot*, Breusch-Pagan (Prob> chi2=0.2247) and White's test (Prob> chi2=0.4810) results eliminate heteroscedasticity as a problem in this regression model (Williams, 2015). *R-squared* (R=0, 44) value suggest that model is well fitted, while *p-value* indicates that model is significant (p =, 000).

**Table 2.** Log-linear Hedonic price model estimate for a small hotel room price

Ln Room price	Coefficients	Interpretation (signif. variable)	Standard Error	t	P>t
Hotel location	-0.013		.014169	-0.94	0.349
Hotel category	<b>0.284</b>	<b>32.90 %</b>	<b>.0587225</b>	<b>4.84</b>	<b>0.000</b>
Internet connection	<b>0.248</b>	<b>28.24%</b>	<b>.1293113</b>	<b>1.92</b>	<b>0.056</b>
Satellite TV in bedroom	0.231		.2424667	0.96	0.341
Central heating	0.019		.1058059	0.19	0.853
Air conditioning	0.192		.1340962	1.44	0.153
Mini bar in bedroom	<b>0.342</b>	<b>40.78%</b>	<b>.0889516</b>	<b>3.85</b>	<b>0.000</b>
Elevator	<b>0.250</b>	<b>28.49%</b>	<b>.0786191</b>	<b>3.19</b>	<b>0.002</b>
Restaurant a la carte	-0.008		.1075324	-0.08	0.938
Conference facilities	0.061		.0821079	0.75	0.456

Children day-care	0.026		.1093545	0.24	0.812
Inner swimming pool	<b>0.215</b>	<b>24.08%</b>	<b>.1196775</b>	<b>1.80</b>	<b>0.074</b>
Outside swimming pool	0.145		.1050962	1.38	0.170
Wellness centre	<b>0.350</b>	<b>41.97%</b>	<b>.0869336</b>	<b>4.03</b>	<b>0.000</b>
Private parking	<b>-0.200</b>	<b>-18.00%</b>	<b>.1145583</b>	<b>-1.75</b>	<b>0.083</b>
Garage parking	-0.007		.1058172	-0.07	0.942
Pets allowed	-0.041		.0818185	-0.51	0.610
Hotel beach	0.029		.0918754	0.32	0.747
_cons	3.609		.3398714	10.62	0.000
Location: reg. Dalmatia	0.0742		.1083254	0.69	0.494
Location: region Istria	0.098		.1189711	0.83	0.409
_cons	4.352		.0923802	47.11	0.000

Source: Conducted research in STATA 13.0.

Results presented in Table 2 indicate that seven variables generate the significant impact on S&F hotel prices. Four variables influence hotel prices within a confidence level of 5% (*hotel category, mini bar in a bedroom, elevator, wellness centre*), additionally, three variables influence within a confidence level of 10% (*internet connection, inner swimming pool, private parking*). All variables, except *private parking*, have a positive coefficient. Variables are tested individually, while constant is given for model in which all variables have been tested together. Interpretation of significant factors considers the calculation of its antilogarithmic value  $(e^{\beta_{coef}} - 1) \cdot 100$  (Rigall-I-Torrent et al. 2011).

Research results suggest that in case of small and family-owned hotels, the most substantial impact is generated by hotel core facilities that potentially determinate whole hotel product including *category* (32,90%) and *wellness facilities* (41,97%). Hotel category has previously been proved as *regular size hotel* price determinate (Thrane, 2005; Schmel, 2012). In that manner, Thrane (2005) indicate how hotel category mediates the effects of the other variables, while in a case of Schmel (2012) it accounts for 29,9% of the hotel price. Current findings support those conclusions, i.e. additional hotel star means hotels can charge up to 32,9% higher rates. *Wellness facilities*, same as variable *inner pool* both significantly influence S&F hotel prices.

Currently, there are no available coefficients on those variables for regular hotels for proper comparisons. Findings suggest that S&F hotels with *wellness centre* can charge up to 42% higher prices while those with *an inner pool* up to 24,08% higher hotel price. The results for variable *outside swimming pool* were not significant in case of S&F hotels, same as in a matter of regular size hotels (Chen and Rothschild, 2010). Latter supports the conclusions how in a case of S&F hotels; the price is primary driven by those services and facilities which make hotel unique and distinguished on the market. *The minibar* seems to be significant price determinant in a case of both hotel segments (Chen and Rothschild, 2010; Schmel, 2012), however, coefficient significantly diverse. In that manner, S&F hotels with *mini bar* can charge up to 40,78% higher prices, while regular size hotel can charge up to 18,64% higher prices (Schmel, 2012).

#### 4. Conclusion

Provision of stable *internet connection* significantly and almost equally influences prices in case of both hotel segments (regular hotels, i.e. 23% - Chen and Rothschild, 2010; Schmel, 2012). The *elevator* in an S&F hotel allows, on average, hotel managers to charge 28,49% higher prices, while the coefficient for regular hotels could not be obtained.

Hotel *location, regarding the region* where the hotel is located, has not proved to be price determinant in this sample. However, reasons for that can be numerous. In this research, we have tested if there are differences in hotel prices depending on a region in which hotel is located, while results may be different if the hotel's location regarding its distance to town centre was analysed. In a case of regular size hotels, numerous studies have identified the position as one of the significant determinants of hotel price (Israeli, 2002; Chen and Rothschild, 2010). Finally, new variables that have not been previously addressed in the research literature (*children day-care, pets allowed*) have not proved to have the significant impact on S&F hotel prices.

Despite the limited number of hotels included in this research (n=140), findings provide valid conclusions regarding small and family owned hotel price determinants. Moreover, study additionally explores and analyses the differences between small and family owned hotels and regular size hotels by comparing the empirical research results with previously published research results. Empirical findings have demonstrated how there are differences in the impact of statistically significant variables between S&F and regular size hotels. Moreover, the coefficient for some of the significant variables in case of S&F hotels (*inner swimming pool and wellness*) could not be obtained for regular size hotels to conduct the comparison.

Additionally, in this research, new variables have been included, that to our knowledge has not been addressed so far. In that manner, research provides valid and encouraging starting point for any future analysis of differences between hotel market segments.

The main limitations of this study are reliance on (1) catalogue data and (2) mostly used dummy variables. Catalogue data may be a most convenient way of gathering information, but due to continuous changes in the market especially in the context of hotel price it is recommended, if possible, to collect real-time data from global distribution systems like Booking.com or Expedia.com.

Concerning dummy variables, there is space for improvement especially in the context of treatment of location and other specific elements of hotel offer that differentiate small hotels from other segments in Industry (like a wine cellar, aspects of cultural heritage etc.). Finally, any future research should focus on: (1) Determining more specific attributes of location, (2)

Capturing real-time data on hotels and prices, and (2) Expanding the number of hotels included in the sample.

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