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WILLINGNESS TO PAY FOR SUSTAINABLE HOTEL SERVICES AS AN ASPECT OF PRO-ENVIRONMENTAL BEHAVIOR OF HOTEL GUESTS

Daniel Puciato
Faculty of Finance and Management, WSB University in Wrocław, Wrocław, Poland
E-mail: daniel.puciato@wsb.wroclaw.pl
ORCID 0000-0002-2390-6038

Adam R. Szromek
Faculty of Organization and Management, Silesian University of Technology, Poland
E-mail: szromek@polsl.pl
ORCID0000-0003-4989-9785

Marek Bugdol
Faculty of Economy, Finance and Management, Jagiellonian University, Kraków, Poland
E-mail: marek.bugdol@uj.edu.pl
ORCID 0000-0001-9993-7765

ABSTRACT. Pro-environmental behaviors foster hotel sustainability, including the achievement of environmental goals. The willingness to pay more for sustainable hotel services should be considered a key pro-environmental behavior. The purpose of this study is to identify the relationship between hotel guests' willingness to pay more for sustainable services in regard to their pro-environmental behavior and selected socioeconomic characteristics. Two main research methods were used: a systematic literature review and a diagnostic survey. A total of 1317 questionnaires were collected from guests of six Polish hotels. The relationship between guests' willingness to pay more for sustainable hotel services and their environmental beliefs was observed. Relationships (positive and negative) between pro-environmental (mitigating) behaviors and willingness to pay higher costs for sustainable services were also noted. Moreover, guests with a higher financial status and education as well as younger guests were found to be more likely to accept higher prices for sustainable hotel services.

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Introduction

Pro-environmental behaviors have been investigated in various service and industrial organizations. It is generally accepted that such behaviors are conducive to the implementation of sustainable development principles and, at the level of specific organizations, they foster the achievement of environmental goals. However, while the knowledge of such behaviors exhibited by hotel employees has been significant, relatively little is known about the pro-environmental behaviors of hotel guests. A hotel stay is associated with relaxation, recreation and fulfilment of professional tasks. Researchers have indicated that hotel guests do not always perceive the need to care for the environment (e.g., Dolnicar, Knezevic Cvelbar, & Grün, 2017; Miao & Wei, 2013; Baker, Davis, & Weaver, 2014). Existing studies on guests' pro-environmental behavior have addressed the relevance of various social norms (e.g., Goldstein, Cialdini, & Griskevicius, 2008; Reese, Loew, & Steffgen, 2014; Terrier & Marfaing, 2015; Han, Moon, & Lee, 2019), values (Dolnicar, Knezevic Cvelbar, & Grün, 2017), decision-making processes and attitudes (Han, Lee, & Kim, 2018), and corporate social responsibility practices in hotels (González-Rodríguez & Díaz-Fernández, 2020). Willingness to pay more for sustainable services has been the focus of studies investigating hotels implementing environmentally sustainable measures (García-Pozo, Sánchez-Ollero, & Marchante-Mera, 2013; Lita et al., 2014), behavioral intentions toward hotels offering green food (Cozzio, Bullini Orlandi, & Zardini, 2018), willingness to pay more for sustainable surf tourism products (Mach & Ponting, 2021), and decision-making factors (Nelson et al., 2021). Some authors suggest that moderators such as gender and age (Hwang & Kim, 2019) or green consumption level (Chia-Jung & Pei-Chun, 2014) may be significant for hotel guests' pro-environmental behaviors.

There have been few studies on the willingness to pay more for sustainable hotel services accounting for socio-economic characteristics of hotel guests, and none of them have referred to the behavior of Polish hotel guests. However, Kulin, & Johansson Seva (2021) and Mi et al. (2020) clearly indicate that there are significant differences in the level of environmental behavior between populations of different countries. The associations of willingness to pay for sustainable hotel services with the level of education and material situation of guests so far have not been considered either. Such relationships are plausible, as Welsch & Kuhling (2009) suggest that some mitigation pro-environmental behaviors implemented in households are associated with education level and income level. The authors of this paper intend to fill these research gaps.

The following literature review and quantitative research results may be useful for hotels managers and government officials responsible for the implementation of various pro-environmental programs.

The objective of this paper is to identify associations between hotel guests' willingness to pay more for sustainable services with regard to their pro-environmental behavior and the guests' selected socioeconomic characteristics.

1. Literature review

Pro-environmental behaviors (PEBs) "include minimising the use of natural resources as well as harmful and toxic substances, and reducing waste generation and energy consumption. They are conscious actions aimed at reducing the negative impact of humans on the environment" (Kollmuss & Agyeman, 2002, p. 240). PEBs can be manifested in many different ways, e.g. by rubbish segregation, reduced consumption of water, or support for environmental organizations (Meloni, Fornara, & Carrus, 2019).

Due to the increasing interest in the concept of sustainability and in meeting climate goals, the PEBs have received considerable attention from researchers and practitioners in the fields of human resources and environmental management systems throughout the years.

Determinants of hotel guests' pro-environmental behaviors

In terms of hotel guests' PEBs, it has been shown that hotel guests' behavior is affected by social norms. Some researchers found that hotel guests were particularly influenced by descriptive norms when, for example, information about a towel-reuse program was accompanied by information about what other guests in their room generally do (provincial norm) rather than what other guests in the hotel do (global norm) (Goldstein, Cialdini, & Griskevicius, 2008; Reese, Loew, & Steffgen, 2014). It was shown, for example, that guests in two hotels used fewer towels, if provincial norms were applied instead of typical environmental communications (Reese, Loew, & Steffgen, 2014). Social norms applied together with a commitment strategy (e.g. a preparatory request involving hanging a card on room door to show support for the hotel's initiatives of sustainable services) can have a positive effect on hotel guests' pro-environmental behaviors (Terrier & Marfaing, 2015). However, appeals made to hotel guests regarding environmental well-being are not always effective (Mascovich, Larson, & Andrews, 2018). A study of Vietnamese hotels revealed that moral norms, next to eco-friendly performance of a green hotel product and satisfaction, contributed to the development of guests' intention to engage in pro-environmental behaviors during their stay (Han, Moon, & Lee, 2019).

Not only social norms theory but also theories of value have been used in research. Studies suggest that appealing to people's pro-environmental values triggers pro-environmental behaviors in various contexts. The results of an experiment in one hotel in Slovenia demonstrated that appeals to people's pro-environmental values fail to significantly increase tourists' hotel towel reuse and decrease room electricity consumption (Dolnicar, Knezevic Cvelbar, & Grün, 2017).

It is not only norms or values that have been the focus of research. Noteworthy are studies conducted using a procedural approach. Juvan & Dolnicar (2017) identified several main pro-environmental behaviors of guests, pursued already at the first stage of tourist product consumption, i.e. preparing for the trip. Some potential tourists even declared that they sometimes cancel their trips in order to reduce the pressure on the natural environment.

Few studies have examined the relevance of habitual and cognitive processes related to eco-friendly decisions during guests' hotel stays. Findings suggest that the practice of towel reuse depends on an internally derived sense of obligation to take eco-friendly action, attitude, overall image, and environmental awareness (Han, Lee, & Kim, 2018). Not only is environmental awareness important but also corporate social responsibility (CSR) practices of hotels (González-Rodríguez & Díaz-Fernández, 2020).

Limitations associated with the development of pro-environmental behaviors of hotel guests

Another group of studies pointed out the constraints related to the development of hotel guests' pro-environmental behaviors. Miao & Wei (2013) and Baker, Davis, & Weaver (2014) showed that respondents exhibited higher levels of pro-environmental behaviors in their households than during hotel stays. Miller, Merrilees, & Coghlan (2015) identified the main barriers to pro-environmental behaviors in hotel guests, i.e. infrastructural (facility) limitations, temporariness of the stay and its leisure motive, inappropriate habits acquired at home and at work, and poor role model behavior patterns set by others, e.g. hotel employees. The motives

of hotel guests are very diverse: from the most obvious ones related to tourism or business to simple entertainment. Some guests treat hotels as places of entertainment or stopovers on their way to a final destination. Most people are less likely to engage in pro-environmental behaviors while on vacation, which has significant implications for sustainable environmental management, both for the local governments and tourist facilities (Dolnicar & Grün, 2009).

Willingness to pay

In terms of willingness to pay, studies to date have addressed the willingness to pay more for services in hotels implementing environmentally sustainable measures (García-Pozo, Sánchez-Ollero, & Marchante-Mera, 2013; Lita et al., 2014), behavioral intentions toward hotels offering green food (Cozzio, Bullini Orlandi, & Zardini, 2018), willingness to pay more for sustainable surf tourism products (Mach & Ponting, 2021), and determinants of decision-making processes (Nelson et al., 2021).

A study by García-Pozo, Sánchez-Ollero, & Marchante-Mera (2013) found that room prices increase when the quality of hotel services is improved by implementing environmental sustainability measures. This means that consumers positively value the implementation of environmentally sustainable measures because by increasing their utility they are willing to pay a premium price for the service provided (García-Pozo, Sánchez-Ollero, & Marchante-Mera, 2013). Research indicates that while tourists prefer luxurious rooms they are also willing to accept lower quality service. Gender and age have a significant impact on tourists' behaviors. It is interesting to note that respondents with high levels of green consumption are more likely to choose hotels with more eco-friendly attributes (Chia-Jung& and Pei-Chun, 2014).

Research in Indonesia revealed that attitude toward pro-environmental behavior has a significant influence on the overall image of hotels - and this in turn has implications for tourists' re-visit intention and willingness to pay more for environmentally friendly hotels. (Lita et al., 2014).

Authors also found that personal beliefs toward green food are positively associated with hotel guests' purchase attitudes toward green food. Stronger purchase attitudes toward green food lead to more favorable purchase attitudes toward hotels that offer green food (Cozzio, Bullini Orlandi, & Zardini, 2018). Another study also revealed that surfers reported being willing to pay between $1.99 and $4.1 billion USD more annually for sustainable surf tourism products (Mach & Ponting, 2021).

Nelson et al. (2021) demonstrated that guests' environmental knowledge and preferences play an important role in their willingness to pay more for sustainable hotel services. Studies also indicate that the tourist segment with high levels of "sustainable intelligence" is willing to pay more to visit a more sustainable tourism destination (Pulido-Fernández & López-Sánchez, 2016).

Sustainable services

The term sustainable services is used to mean environmentally friendly services (e.g. Ko & Song, 2019). Terms such as sustainable tourism services (Barkmann et al., 2010) or green services can be also found in literature (Agarwal & Kasliwal, 2019). In the case of hotels a frequently encountered term is green hotel services (TM et al., 2021). In the present study we refer to only one perspective of sustainable services, namely green services. The reason for this is a simple logical relationship. The object of our research are pro-environmental behaviors.

2. Methodology

Methods

The first applied research method was a systematic literature review. The literature on the subject was reviewed in the following stages: (1) selecting keywords: pro-environmental behaviors, hotels, hotel guests, willingness to pay more, sustainable hotel services; (2) searching databases for works containing the identified keywords: Academic Search Ultimate (including Business Source Ultimate), Education Resources Information Center, AGRICOLA, Green FILE, and Google Scholar; (3) becoming familiar with the retrieved publications; (4) reviewing the publications; (5) preparing a map of the available literature; (6) summarizing the publications; and (7) arranging the collected research material. The applied procedure was consistent with the general methodology of research conduct (Craswell, 2013) and research methodology in management sciences (Easterby-Smith, Thorne, & Jackson, 2015).

Based on the literature review, after identifying the research gap, the following questions were formulated:

1) Is there an association between guests' willingness to accept paying higher costs for hotel stays resulting from the hotel's implementation of pro-environmental measures and guests' environmental beliefs?
2) Is there a relationship between pro-environmental (mitigating) behaviors and the willingness to pay higher costs for sustainable services?
3) What socioeconomic characteristics are significant for hotel guests' willingness to pay more for green services?

Assumption 1: It is assumed there is a relationship between guests' willingness to pay higher hotel stay costs related to the hotel's implementation of pro-environmental measures and guests' environmental beliefs.

This assumption is supported by research on both the motives for exhibiting pro-environmental behaviors-especially in relation to guests' environmental preferences (Nelson et al., 2021) and personal relationship with nature (Whitburn, Linklater, & Milfont, 2019). There are also studies indicating a tendency to pay more for certain sustainable services (García-Pozo, Sánchez-Ollero, & Marchante-Mera, 2013; Lita et al., 2014; Cozzio, Bullini Orlandi, & Zardini, 2018; Mach & Ponting, 2021).

Assumption 2: It is assumed there is a positive relationship between pro-environmental (mitigation) behavior and the willingness to pay higher costs for sustainability services.

This assumption is supported by research indicating hotel guests' pro-environmental behaviors and beliefs indicating that guests exhibit mitigation actions (Juvan & Dolnicar, 2017) and an internally derived sense of obligation to take eco-friendly actions (Han, Lee, & Kim, 2018). Individuals who express pro-environmental behaviors expect the same from others. The manifestation of pro-environmental behaviors toward the environment as well as other individuals or entities is associated with certain benefits. If guests take care of the hotel resources they also takes care of the environment as well as the costs incurred by the hotel. The problem that may arise here is the profit-and-loss calculation. Few studies show that the calculation of losses and gains may be significant for hotel guests' behavior, and the knowledge of the calculation may be very useful for creating persuasive messages aimed at encouraging hotel guests' voluntary participation in green programs (Grazzini et al., 2018).

Assumption 3: It is assumed there are certain socio-demographic characteristics significant for the willingness to pay more for green services.

Some studies indicate that gender and age may be relevant to pro-environmental behavior (Hwang & Kim, 2019). Guests with high green consumption levels are more likely to choose hotels with a greater number of environmentally friendly attributes (Chia-Jung & Pei-Chun, 2014).

The main research method used in this study was a diagnostic survey. The study included guests staying in six hotels in four Polish cities: Warsaw, Krakow, Wroclaw and Opole. The study was of partial character using random-temporal sampling. A total of 1351 people were surveyed who agreed to complete the research questionnaire. After elimination of partially or incorrectly completed questionnaires, data from 1317 respondents were further analyzed. The study was conducted between June and September 2021.

The study used an authors' own three-part research questionnaire. The first part included questions about respondents' characteristics (12 items), followed by 12 questions characterizing the hotels where the research was conducted. The last part of the questionnaire included 15 questions addressing the research topic. The reliability of the questionnaire was tested using Cronbach's alpha coefficient. The obtained coefficient value for the ranked items was 0.7740, permitting assumption of the tool's reliability. A total of 1317 fully completed questionnaires were collected, which at a significance level of 0.95 allowed for an acceptable sampling error of ± 2.7%.

Data analysis

Univariate and multivariate statistical methods were used in the analysis of the research material. First, formal corrections were made to the collected research material by removing formal errors and then producing a database. The data were then subjected to substantive analysis, eliminating extreme and outlier observations.

The descriptive analysis used basic classical and positional measures, specifically, arithmetic means, standard deviation, medians, kurtosis and skewness. Quasi-Newton estimation was also used in fast logistic regression, obtaining logit models and odds ratio from the OR unit.

In order to quantify the frequency of undertaking specific pro-environmental practices, variables expressed on an ordinal and nominal scale were used. In the first step, the respondents were asked whether they take specific actions (nominal variable). If the respondent undertook specific actions, then he indicated the frequency of taking them (an ordinal variable). For a better understanding of the frequency of actions taken, the partial results were also aggregated. It consisted in assigning the features of successive ranks to the variants, which were then summed up and averaged. The obtained results were subjected to zero unitarization (Kukuła & Bogocz, 2014), resulting in a frequency rate (W_F) of 0.0 ÷ 1.0. To make the results more precise, individual percentage results are also given along with the WF index.

3. Findings

Respondents' characteristics

The analysis included data from 1,317 respondents, the majority of whom (63.4%) were women and only one in three were men (36.6%). The respondents' age structure was moderately differentiated: every third respondent (35.5%) was aged 18-25 years, every fourth respondent (23.2%) - 26-35 years, and every fourth respondent (25.1%) - 36-45 years. When analyzing the

age structure by gender, a disproportion in individual categories was also noted. Among the women every second respondent (50.3%) was between 18-25 years, only every tenth respondent among the men (10.0%). On the other hand, among the men the dominant group (37.6%) were respondents aged 36-45 years, while among the women this age group was represented by 18%. This means that the age structure of the surveyed men and women was slightly different, as young women and older men predominated (Tab. 1).

Table 1. Respondents' characteristics (age, sex, marital status)

Sex	**%**	**Marital status**	**%**	
women	63.4%	married	58.1%	
men	36.6%	single	41.9%	
	100.0%		100.0%	
Age	**%**	***Women***	**Age**	***Men***
18-25 years	35.5%	50.3%	18-25 years	10.0%
26-35 years	23.2%	19.5%	26-35 years	29.7%
36-45 years	25.1%	18.0%	36-45 years	37.6%
46-55 years	12.7%	9.8%	46-55 years	17.6%
56-65 years	3.0%	2.2%	56-65 years	4.6%
> 65 years	0.4%	0.2%	> 65 years	0.6%
	100.0%	100.0%		100.0%

Source: authors' own

The majority of the respondents have a higher (60.2%) and secondary (37.1%) education. Those with a primary education constituted only 2.6% of all respondents. Every third respondent lived in a big city (33.6%), similarly, 31.6% came from mid-sized towns. Small towns were represented by one in five respondents (21.3%). Two out of three respondents had no children (65.3%).

The respondents' dominant motive for staying in the hotel was recreation - that was declared by two out of three respondents (66.7%), while the remaining respondents indicated the business motive (33.3%). The occupational structure of respondents indicated that office workers (42.7%) and students (27.3%) constituted the majority. Entrepreneurs, on the other hand, constituted 18.1% of the respondents (Table 2).

Table 2. Respondents' characteristics (education, place of residence, occupation, family status)

Education	**%**	**Place of residence**	**%**
primary	0.8%	village	13.6%
vocational	1.8%	small town	21.3%
secondary	37.1%	mid-sized town	31.6%
higher	60.2%	city	33.6%
	100.0%		100.0%
Occupation	**%**	**Having children under 18 years of age**	**%**
manual worker	8.2%	Yes	34.7%
office worker	42.7%	No	65.3%
entrepreneur	18.1%		100.0%
school or college student	27.3%	**Reason for hotel stay**	**%**
unemployed	2.7%	business	33.3%
pensioner	0.8%	leisure	66.7%
	100.0%		100.0%

Source: authors' own

While assessing their material status, respondents mostly declared it to be average (70.8%) or high (21.9%). Extreme ratings were reported by a small part of the respondents.

On the other hand, the assessment of perceived health condition among the respondents had an extremely asymmetric distribution, as hotel guests with good (45.3%) and very good perceived health condition levels (41.5%) predominated. Only one in ten rated their health condition as average (12.1%). Poor and very poor perceived health condition was declared by fewer than 1% of respondents.

Respondents' assessment of the overall quality of life was consistent with their assessment of material status - again the distribution of ratings was close to normal, i.e., the average quality of life was declared by most respondents (59.3%), and every third respondent reported a high quality of life level (34.9%). Extreme ratings were indicated rarely.

There was no difference when assessing the levels of ecological awareness. Here, too, the largest percentage - almost half of the respondents - rated it average (48.7%), and every third respondent (37.0%) rated it high. Ecological awareness was rated very high by 8.3% and low by 5.9% of respondents (Table 3).

Table 3. Respondents' assessment of material status, perceived health condition, overall quality of life and environmental awareness

Material status	**%**	**Perceived health condition**	**%**
very low	0.6%	very low	0.4%
low	4.9%	low	0.8%
average	70.8%	average	12.1%
high	21.9%	high	45.3%
very high	1.7%	very high	41.5%
	100.0%		100.0%

Overall quality of life	**%**	**Environmental awareness**	**%**
very low	0.2%	very low	0.2%
low	1.9%	low	5.9%
average	59.3%	average	48.7%
high	34.9%	high	37.0%
very high	3.8%	very high	8.3%
	100.0%		100.0%

Source: authors' own

Willingness to pay for sustainable hotel services

A key area of the study, in terms of the study objectives, was the respondents' assessment of their willingness to pay more for sustainable hotel services. Interestingly, two out of three respondents (63.2%) were not willing to pay more to stay in a hotel where pro-environmental measures were implemented. The remaining (36.8%) conditioned their willingness to pay more on the charges attached to their hotel bill. Thus 8% of all respondents (21.9% declaring willingness to pay additional costs) were willing to agree to increase the price of their stay by up to 3%, while the majority (13.2% of all respondents, i.e. 35.9% declaring to incur environmental costs) were willing to pay even 5% more. More than every tenth respondent (i.e. 31.8% of those initially agreeing to such costs) declared that they would agree even to a 10% increase in the price of their stay if offered sustainable services (Tab. 4).

Table 4. Guests' willingness to pay for green hotel services

Are you willing to pay more to stay in a hotel that implements green practices?	
No	Yes
63.2%	36.8%

If yes, how much more?

Price increase	**% total**	**% of "Yes" respondents**
< 3%	8.0%	21.9%
4-5%	13.2%	35.9%
6-10%	11.7%	31.8%
11-15%	2.8%	7.6%
16-20%	0.6%	1.6%
> 20%	0.5%	1.2%
no increase	63.2%	-
	100.0%	100.0%

Source: authors' own

Pro-environmental behaviors of hotel guests

The survey also identified the frequency of pro-environmental mitigating behaviors displayed by the hotel guests. Respondents' answers were subjected to aggregation, which yielded the value of WF index from 0 to 1, where 1 was the highest frequency of undertaken actions, and 0 - they very rarely engage in such behaviors. The pro-environmental behaviors most often demonstrated by the surveyed guests were: saving electricity by turning off lights when not needed (WF = 0.72), limiting food and beverage portions to the amount they can consume without wasting the remainder (WF = 0.70 for food, WF = 0.70 for beverages), and taking care of the cleanliness of the visited places (WF = 0.69).

Only three pro-environmental behaviors were rarely pursued by guests during their hotel stay. Respondents generally very rarely consider environmental issues when choosing a hotel (WF = 0.16), rarely try to influence other guests' pro-environmental behaviors (WF = 0.29), rarely use public transport to and from the hotel (WF=0.34), and equal rarely cut back on eating meat products (WF = 0.36) (Table 5).

Table 5. Frequency of pro-environmental behaviors exhibited by hotel guests

Frequency of guests' pro-environmental behaviors in hotels	***Rarely***	***Often***	***Always***	***W_F Index***
I turn off the light when I don't need it	6.9%	43.0%	50.0%	0.72
I only help myself to as much food as I can eat	6.7%	46.9%	46.3%	0.70
I only pour myself as many drinks as I can drink	6.7%	47.0%	46.2%	0.70
I keep the places I visit clean	10.5%	41.4%	48.0%	0.69
I take a shower, not a bath	10.2%	54.0%	35.8%	0.63
I ask to change towels and sheets when they are really dirty	12.5%	49.6%	37.7%	0.63
I turn off the heater or air conditioner when I open a window	14.4%	46.5%	39.1%	0.62
I sort waste	13.1%	50.0%	36.8%	0.62
I conserve water	14.6%	54.4%	31.0%	0.58
I prefer electronic rather than paper versions of documents	14.9%	55.7%	29.3%	0.57
I minimize plastic use	22.2%	56.8%	21.0%	0.49
I don't use a car during my stay at a hotel	26.9%	54.2%	18.8%	0.46

I shop at local suppliers	35.4%	53.3%	11.2%	0.38
I limit the consumption of meat products	46.4%	34.3%	19.2%	0.36
I use public transport to and from the hotel	40.5%	51.6%	7.8%	0.34
I influence other people's pro-environmental behaviors	51.7%	39.2%	8.9%	0.29
I consider environmental issues when choosing a hotel	71.5%	24.9%	3.6%	0.16

Source: authors' own

Pro-environmental behaviors and willingness to pay for sustainable hotel services

The analysis also showed how the pro-environmental behaviors declared by the surveyed guests impacted their willingness to pay more for a stay in a hotel in which pro-environmental measures were implemented. The obtained data were additionally subjected to multivariate statistical analysis. Due to the fact that respondents' willingness to pay higher prices for green hotel services, related to their commitment to pro-environmental behaviours, is a dichotomous variable, logistic regression and odds ratio were used in the statistical analysis. The analysis was stepwise, and the first stage included successive groups of questions asked to the respondents. Multivariate logistic models were then created, which were then used to discern which variables were likely to be significantly influential in elucidating guests' willingness to pay more for sustainable hotel services.

Table 6 presents the results of the analysis in the form of a logistic model, involving only statistically significant variables ($p < 0.05$).

Table 6. Respondents' pro-environmental behaviors and willingness to pay more for sustainable hotel services in a logistic regression model

Hotel guests' pro-environmental behaviors and willingness to pay more	***B***	**Stand. Error**	***p***	**OR**
intercept term	-4.925	0.476	0.001	0.007
I consider environmental issues when choosing a hotel	1.105	0.104	0.001	3.020
I only help myself to as much food as I can eat	0.584	0.119	0.001	1.792
I limit the consumption of meat products	0.361	0.075	0.001	1.435
I sort waste	0.357	0.102	0.001	1.429
I prefer electronic rather than paper versions of documents	0.278	0.100	0.006	1.320
I ask to change towels and sheets when they are really dirty	-0.265	0.098	0.007	0.768
I minimize plastic use	-0.294	0.116	0.012	0.745
I don't use my car during my stay at a hotel	-0.373	0.092	0.001	0.689

Source: authors' own

The resulting logistic regression model was statistically significant ($p < 0.001$), and its prediction performance reached 73.8%. Therefore it can be concluded that the willingness to accept higher costs of a stay resulting from implementation of pro-environmental measures by the hotel is higher among guests who take environmental issues into account when choosing a hotel. It should be noted that with the increase by one rank, the probability of agreeing to pay the costs of sustainable services increases twice (OR = 3.02).

Willingness to pay more for services of hotels undertaking environmentally friendly actions is also associated with the declarations of guests engaging in such mitigation pro-environmental behaviors as putting only as much food on their plate as they are able to eat, limiting consumption of meat products, sorting waste, and preferring electronic rather than paper versions of documents. If a guest declared that they were trying not to waste food, their willingness to pay for sustainable hotel services increased by 79.2% (OR = 1.792). The conditional probability of guests' willingness to pay higher prices for services of hotels implementing environmentally friendly practices also increased by approximately 43% when

the guests declared that they reduced meat consumption (OR = 1.435) and sorted waste (OR = 1.429). The willingness to pay more for green hotel services increased by 32% when the guests preferred electronic over paper versions of documents (OR = 1.32).

Pro-environmental behaviors that inversely affect the willingness to pay more for sustainable services were also identified among surveyed hotel guests. If respondents declared that they ask to change towels and bed linen when they are really dirty (OR = 0.768), minimize the use of plastic (OR = 0.745), or refrain from using a car during the stay (OR = 0.689), their willingness to pay higher prices for services of hotels undertaking pro-environmental actions decreased by approximately 30%.

Socio-economic characteristics of hotel guests and willingness to pay for sustainable services

The study results showed that the three considered socio-economic characteristics of the surveyed guests significantly moderated ($p < 0.05$) their willingness to pay premium prices for sustainable hotel services. The obtained logistic regression model ($p < 0.001$) explained 63.7% of guests' behaviors. It proves that the higher the material status of the hotel guest, the higher (by 65%) his/her willingness to pay the costs of pro-environmental measures of the hotel was. Similarly, with each extra level of education of respondents, their willingness to pay more for green hotel services increased by 34.2%. In contrast, the reverse pattern was true for respondents' age, as their willingness to pay higher prices for sustainable hotel services decreased with age and was 34.1% lower for respondents in each successive age category (OR = 0.659). The model parameters are presented in Table 7.

Table 7. Respondents' characteristics and willingness to pay more for green hotel services in a logistic regression model

Hotel guests' socio-economic characteristics and willingness to pay more	*B*	Stand. Error	*p*	OR
intercept term	-2.289	0.482	0.001	0.101
perceived material status	0.501	0.107	0.001	1.650
education	0.294	0.111	0.008	1.342
age	-0.416	0.055	0.001	0.659

Source: authors' own

Discussion and conclusion

Theoretical contribution

The study confirmed the first research assumption regarding the relationship between the guests' willingness to accept higher costs of hotel stay caused by the hotel's introduction of environmental measures and their environmental beliefs. The willingness to pay more for sustainable hotel services was reported by about one third of the guests. The willingness to accept higher prices for sustainable services was also more than twice as high among those who considered environmental issues in their hotel selection process, which validates the research assumption. The high significance of individuals' environmental beliefs for their pro-environmental behaviors was previously demonstrated by Moyano-Díaz, Palomo-Vélez, & Vergara-Bravo (2019). The results of previous studies also indicate that such aspects of environmental beliefs as feeling in community with nature (Mayer & McPherson, 2004; Nisbet, Zelenski, & Murphy, 2009; Schultz, 2000), connectedness to nature (Brügger, Kaiser, & Roczen, 2011), and a positive attitude toward the natural environment (Whitburn, Linklater, & Milfont, 2019) positively influence pro-environmental behaviors. This confirms the great

importance of psychosocial factors such as values (Chen, 2020); personal norms, social norms and awareness of consequences (Esfandiar et al., 2020); or autonomous motivation (Hicklenton, Hine, & Loi, 2019) affecting pro-environmental behaviors.

However, it is also important to note that among the hotel guests, as many as two-thirds refused to pay for sustainable services, and the remainder often made this decision contingent on pricing. This implies that even if hotel customers agree to the hotel's implementation of sustainability-related actions, they generally consider it a cost of running hotel business and refuse to pay it in full. Han, Lee, & Kim (2018) found that the implementation of pro-environmental behaviors stems from an internally derived sense of obligation to implement them. However, individuals who pursue pro-environmental behaviors expect the same from others, including hotel owners. Demonstrating pro-environmental behaviors should be associated with the sharing of benefits and costs (financial, psychological, etc.) of various groups of hotel stakeholders, which testifies to the authenticity of motivation to create sustainable services.

The second research assumption of a positive relationship between hotel guests' pro-environmental behaviors (mitigation actions) and willingness to pay more for sustainable services, was partially falsified in the present study. The willingness to pay for sustainable hotel services was higher among guests who declared putting only as much food on a plate as one can eat, limiting consumption of meat products, segregating waste, and preferring electronic rather than paper versions of documents. However, guests also pursued pro-environmental behaviors that had the opposite effect on their willingness to pay more for sustainable services, i.e. asking to change towels and sheets only when they are really dirty, limiting the use of plastics, and not using a car during their stay. The results likely indicate that hotel guests have an established range of pro-environmental behaviors that, they believe, relieve them of an internally derived sense of obligation to pay more for sustainable hotel services. It seems that guests will find the personal sacrifices they are making to be sufficient, which may result in a disapproval of paying even higher prices at the hotel. At least some of these behaviors are associated with reduced hotel costs. For example, replacing hotel linens less frequently than daily translates into lower laundry and ironing costs. Line and Hanks (2016), furthermore, noted that some hotel guests see efforts to build sustainable hotel services as almost exclusively aimed at reducing the financial costs, which significantly diminishes their motivation to exhibit pro-environmental behaviors.

The results of the present study fully confirm the third research assumption. Socio-demographic characteristics of the surveyed hotel guests such as material situation, education level, and age were significant for their willingness to pay more for green services. Materially better-off and educated guests were more likely to accept higher prices for sustainable hotel services than less well-off and educated guests. However, they were generally the same people, as in the very high material status group up to 87% had a higher education and in the high material status group 72% - a higher education. This indicates that greater willingness to pay for pro-environmental measures implemented in hotels is associated with guests' higher income which can be explained as follows: vonsidering the comparable role of such actions in the value system of people with a higher and lower material status, this extra cost (higher price for sustainable services) is a significantly higher proportion in the income of the less wealthy than of the more wealthy. This implies that the extreme willingness to accept the higher cost of a hotel stay is different among individuals with varying degrees of wealth and education level. There have been no previous studies on the relationship of willingness to pay for sustainable hotel services with the material situation and education level of hotel guests. However, there are studies that analyze the impact of these socioeconomic factors on other pro-environmental behaviors. Juvan and Dolnicar (2017) suggest that higher income levels may result in more eco-

friendly behaviors, possibly mediated by education level. However, the empirical results on the relationship between tourists' eco-friendly behaviors and material situation and education level are inconsistent. On the one hand, people with higher income and better education are more likely to engage in certain eco-friendly behaviors while staying in hotels (Dolnicar, 2010; Kapera & Wszendybył-Skulska, 2017), on the other hand, they prefer an unsustainable model of tourism consumption, characterized, among other things, by more frequent tourist trips and travel to more distant tourist destinations (McKercher et al., 2010).

Similar conclusions can be drawn from the analysis of age groups, but the situation is reversed for the respondents' age, i.e. older people are less willing to pay more for sustainable services than younger people. Previous studies have also suggested that age plays a significant moderating role in exhibiting pro-environmental behaviors. While their results were inconclusive, most of them indicated that younger people are more likely to adopt such behaviors than older people (Straughan & Roberts, 1999). Han et al. (2011) even showed that younger people are more likely to pay more for green goods and services. Interestingly, an earlier study by Han, Hsu, & Lee (2009) found that age played an important moderating role in the relationship between hotel image and willingness to pay more. Older people were willing to pay more than younger people only when the image of the green hotel was positive. This indicates that older people are more rational because of their experience, and manifest their consent to pay more only when they rate the hotel services offered as genuinely sustainable. Similar findings were reported by Hwang & Kim (2019).

Practical implications

The present study offers several practical recommendations for hotel managers offering sustainable services. First, hotel marketing communicators should take steps to reinforce guests' pro-environmental beliefs. The research results indicate that there is a relationship between guests' willingness to pay for sustainable services and pro-environmental beliefs. Proactive environmental strategies should be implemented in hotels in order to shape moral norms and increase guests' commitment to and satisfaction with the implemented pro-environmental practices. Hotel marketing staff should inform the guests about the negative impact of the hotel industry on the natural environment, and demonstrate the negative consequences of hedonistic values. It is important to use appeals to the guests' pro-environmental values and to make them aware of the high environmental impact of their behaviors. Secondly, measures aiming at creating the image of a green hotel should be considered crucial. This is because the surveyed hotel guests had an identified range of pro-environmental behaviors, which in their opinion exempted them from the internal obligation to pay extra for sustainable hotel services. It is therefore essential that the pro-environmental actions undertaken in the hotels are genuine and that the main motive for their implementation is concern for the natural environment. If specific pro-environmental mitigation behaviors demonstrated by hotel guests are associated with the reduction of financial costs for the hotel, then the guests have to share in such profits, e.g. in the form of discounts or rewards for them, or donations made to environmental causes on their behalf. Third, sustainable hotel services must be tailored to particular hotel market segments. Socioeconomic characteristics such as wealth, education, and age significantly affected hotel guests' willingness to pay more. The form in which information about the environmental performance of hotels, such as energy sources used, pro-environmental investments, and supplier selection, is communicated must be adjusted to customers of different ages and educational levels. It is also important to note that the relative cost of paying higher prices for sustainable services is higher for guests with lower incomes. The degree of guests' participation

in the costs of environmentally friendly measures undertaken in hotels, should therefore be different in hotels of with different standard and pricing policies.

Limitations and further research

The main limitations of the study are the research time scope and the nature of applied research methodology. The study was conducted between May and September 2021. Although this was a period when the number of COVID-19 cases was still not very high, it cannot be excluded that some respondents' declarations of willingness to pay more for sustainable hotel services may have been slightly different from those before the pandemic. The type of research methods used can also be considered a limitation. The applied diagnostic survey made it possible to gather information regarding respondents' willingness to pay more, demonstrated pro-environmental behaviors, and the level of environmental awareness. These declarations may not necessarily be identical to the real ones, which may result from both the possibility of giving false information by some of the respondents, as well as from inaccurate reading of the questions, misunderstanding of some of them, or situational factors such as haste or bad mood.

The results of the study and mentioned limitations indicate the necessity of conducting further research into the subject area. It is absolutely necessary to extend the time range of prospective studies. The continuation of reserach will facilitate the identification of possible differences between the willingness to pay more for sustainable hotel services during and after the pandemic. This seems to be particularly important in terms of scientific and practical applications, since both literature and business practice strongly emphasize the need to create conceptual and practical assumptions for the so-called post-pandemic tourism. One of the immanent and strongly postulated characteristics of post-pandemic tourism is the tendency towards sustainability, which may be of great significance for guests' willingness to pay more for green services and pro-environmental behaviors in hotels. The range of applied research methods should be also expanded. Special attention should be paid to experimental methods, increasingly used in economics and management. Combining experiments with diagnostic surveys will permit identification of the actual and declared willingness to pay more for green hotel services and detection of possible differences between them. In this context, an interesting prospective research problem is also an assessment of the impact of environmental awareness on the willingness to pay more. The results of previous studies have not always indicated an association between pro-environmental behaviors and environmental awareness.

Declaration of conflicting interests

The author(s) declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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