



# How Much Are Consumers Willing to Pay for a Greener Hotel **Industry? A Systematic Literature Review**

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**Abstract:** This work uses the systematic literature review (SLR) method to explore the premium that consumers would be willing to pay to stay at a green hotel. To the best of the author's knowledge, it is the first review on this topic and, thus, fills a gap in the existing literature. The search process identified 22 articles from 13 countries which were analyzed to explore three principal research questions regarding the valuation methods used to estimate the premium, the size of the premium, and the factors affecting the premium. From a policy perspective, the analysis shows that the lack of studies on the topic is a serious obstacle to the hotel sector's efforts to reduce its environmental footprint. From a managerial perspective, it is argued that consumers who are willing to pay to stay at green hotels would accept a premium of around 5%. Finally, from an estimation perspective, the analysis highlights specific gaps in and limitations of current studies that should be considered in future research efforts relating to the geographical coverage, accommodation type, factors affecting the premium that hotel customers would pay for green initiatives, and certain methodological issues, among others.

Keywords: green hotel; eco hotel; willingness to pay (WTP); sustainability



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#### 1. Introduction

Undoubtedly, the travel and tourism industry is a global source of income and employment. Based on the latest available data, the industry, in 2021, contributed USD 5.812 trillion to global GDP (around 6.1%) after a devastating fall of 50.4% in 2020 due to the COVID-19 pandemic (from USD 9.630 trillion in 2019 to 4.775 trillion in 2020) [1]. Furthermore, in 2021, it supported 289.5 million jobs, an increase of 6.7% compared to 2020, but lower than the 333 million jobs which existed in 2019 [1]. Yet, it is forecasted that between 2022 and 2032, the sector's contribution to the global economy will grow at an annual rate of 5.8%, on average, generating 126 million additional jobs [1]. Focusing on the hotel industry, the actual figures are unknown, but it is estimated that there are 17.5 million guestrooms in 187,000 hotels around the world [2]. According to IBIS World, the global hotels and resorts market revenues were approximately USD 723 billion in 2021, down more than 52% compared to 2019 [3]. Nevertheless, the market size is estimated to grow by almost USD 342 billion in 2022 and is projected to reach USD 1.2 trillion by 2023, close to 2018 levels [3].

At the same time, however, the hotel industry's contribution to economic development has significant impacts on the environment. The hotel sector consumes large amounts of energy for heating, cooling, lighting, appliances, and laundry systems, uses large amounts of important water resources and materials, generates waste, emits significant proportions of greenhouse gases (GHG), and may also lead to loss of biodiversity and changes in the territorial landscape [4-16]. Lenzen et al. [17] found that between 2009 and 2013, tourism's global carbon footprint increased from 3.9 to 4.5 equivalent GtCO<sub>2</sub>, accounting for about 8% of global greenhouse gas emissions. The contribution of accommodation to the total emission of travel and tourism is estimated at 6% or 324 equivalent MtCO<sub>2</sub> [18]. For instance, Huang et al. [19] used a sample of 58 Taiwanese luxury hotels and estimated that

the average GHG emission was 132 kg equivalent  $CO_2/m^2/y$ ear or 29 kg of equivalent  $CO_2/a$ ccommodated guest–night, or 50 kg equivalent  $CO_2/r$ oom–night. Xuchao et al. [8], based on a sample of 29 hotels in Singapore, estimated that the direct (Scope 1) and indirect, i.e., emissions from the generation of purchased electricity (Scope 2), GHG emissions were, on average, 221.8 kg  $CO_2/m^2/y$ ear or 55.4 kg  $CO_2/r$ oom–night.

In recent decades, the increase in environmental problems has led to a growth of environmental concerns in society [20,21] and to a reconsidering of traditional economic, ethical, and accounting assumptions [22]. This increasing environmental awareness creates a growing demand for more environmentally friendly practices and products, known as green consumption [20,21,23–25]. Enterprises and organizations are trying to respond to consumers' changed preferences and promote a more attractive image to the public in light of sustainable development [26–29]. The tourism sector is no exception [4–7,9–11,30,31]. For example, the Green Hotels Association brings together hotels interested in environmental issues and provides comprehensive guidelines on how to reduce the hotel's impact on the environment while saving money [32]. The International Tourism Partnership (currently known as the Sustainable Hospitality Alliance) estimated that the global hotel industry will need to reduce its GHG emissions per room per year by 66% from 2010 levels by 2030, and 90% by 2050, to address the industry's impact on climate change [33]. About 75% of the reduction by 2030 will have to be achieved internally through energy efficiency, renewable energy sources, and other mitigation mechanisms [33]. In the same direction, the World Travel and Tourism Council (WTTC) developed, jointly with the United Nations Environment Programme (UNEP) and Accenture, the "Net Zero Roadmap for Travel & Tourism" [18]. Other joint efforts include the "Tourism Declares a Climate Emergency" and the "Glasgow Declaration on Climate Action for Tourism" [18].

On an enterprise level, more and more hotels are implementing green principles and programs, such as energy conservation, solid waste and emissions reduction, and water and resources conservation in the context of green or eco or sustainable hotels, and adopting green certification schemes [34–40]. According to the latest Green Lodging Trends Report [41], almost 60% of all sampled hotels have a dedicated sustainability budget, more than 80% plan and implement initiatives to reduce energy use, over 60% plan and implement carbon reduction initiatives, 66% have eliminated the use of plastic straws, about 25% have installed water refill stations in public areas to reduce the use of disposable plastic water bottles, about 63% plan and implement waste reduction initiatives, more than 85% implement food waste prevention strategies, and around 80% offer guests opportunities to support or participate in its environmental and social initiatives, among others.

The sustainability process can require large investment costs for energy- and waterefficient appliances, and may have a negative impact on profits given the cost increase involved in the adoption of sustainability practices [42]. Further, there are market (informational and others), behavioral, and organizational barriers to the adoption of sustainable practices, especially with regard to energy efficiency [43,44]. On the other hand, several studies have identified the benefits of green hotels, including financial benefits from energy and water savings and higher room rates, improved image and reputation, public scrutiny, and enhanced investor relations [42,45]. Environmental responsibility can also bring increased occupancy rates. According to Booking's latest Sustainable Travel Report [46], the awareness and visibility of more sustainable stays grow consistently. About 72% of travelers that participated in the survey confirm that sustainable travel is important to them, 42% say that climate change influences them to make more sustainable travel choices, and 63% want to make more sustainable travel choices in the next year. Nevertheless, hotel customers may fear being deceived by the greenwashing of hotels, may view green practices as retrofitting and inconvenient because they may have to sacrifice comfort and luxury, or may feel that the hotels should offer lower prices due to the cost savings [35,39,47–49].

So far, a plethora of studies have been conducted to investigate consumers' perceptions of and willingness to stay at green hotels, focusing particularly on the factors affecting their choices, their willingness to pay a premium, and their word-of-mouth inten-

tions [29]. Myung et al. [50] conducted a review of 58 research papers published between 2000 and 2010 and found 12 research papers related to green hospitality and consumer behavior. Gao et al. [51] carried out an integrated literature review of 26 papers published from 2000 to 2014 to examine in more depth the internalized perceptions and the perceptions of the firm that influence consumers' perceptions of green hotels/restaurants. Dimara et al. [47] performed a non-systematic review and meta-analysis of 10 papers published between 2003 and 2015 to investigate the proportion of tourists, hotel customers, or visitors willing to pay for environmentally friendly practices in hotels. In the most recent relevant literature review, Arun et al. [29] analyzed 76 papers on consumer adoption and consumption of green hotels, which were published between 2004 and 2020, focusing on four topics, namely consumer behavior variables, antecedents and mediators of green hotel adoption, moderators of the relationship, and methodological considerations.

The existing literature reviews have not systematically investigated what is the premium that consumers would be willing to pay to stay at a green hotel. This is critical information for three reasons: (a) the willingness of hotel owners to invest in green initiatives depends on their knowledge of how much their customers would be willing to pay for greener hospitality services [52], (b) price is a crucial determinant of consumers' purchasing behavior and, thus, willingness to pay (WTP) a premium significantly influences their intention to visit green hotels [53], and (c) the existing literature reports differing results regarding WTP for green hotels [51,54]. This study aims to fill this gap by conducting a systematic literature review (SLR) dedicated to research papers that provide estimates about how much consumers would be willing to pay to stay at a green hotel. To the best of the author's knowledge, this is the first review on this topic.

The rest of the research paper is structured as follows. Section 2 presents the SLR process implemented towards identifying and collecting relevant research papers. Section 3 analyzes the results with regard to the main research questions. Finally, Section 4 discusses the main findings and the conclusions drawn from the research.

# 2. Data and Methods

A systematic literature review (SLR) is a research process used to collect, identify, and analyze the available research studies, using organized, transparent, and replicable procedures, to answer research questions or hypotheses based on pre-specified inclusion criteria [55–60]. An SLR, depending on its scope, allows a reliable search and identification to take place of the relevant literature about a subject, highlights critical points of current knowledge on a topic and uncovers areas in which more research is needed, evaluates existing methodological approaches, reveals inconsistencies in prior results and discusses potential explanations, and offers a statistical procedure for synthesizing findings (e.g., [29,57–59]; for a more detailed typology of SLR methods, readers are referred to [56,57]).

There exist several guidelines on how to perform systematic reviews (e.g., [55–60]). This SLR aims to explore consumers' WTP a premium for staying at a green hotel and enjoying green services, following the basic SLR steps described in [57,59], that is (1) planning the review, (2) conducting the review and analyzing the results, and (3) reporting the results.

The main research questions guiding this review are as follows:

- What are the main valuation methods used to estimate the premium that consumers would be willing to pay?
- How much are consumers willing to pay for green hotel services?
- Which are the factors affecting the premium that consumers would be willing to pay?

The existing papers were screened based on the following inclusion criteria: (i) empirical papers estimating consumers' WTP a premium for green hotel services; (ii) papers published in peer-reviewed scientific journals; (iii) papers published in English; and (iv) papers published across all years. Further, the following exclusion criteria were decided: (i) papers exploring consumers' WTP a premium for green hotel services without providing monetary estimates; (ii) non-peer-reviewed papers and grey literature; and (iii) theoretical papers and editorials.

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In regard to the search strategy, the Scopus database was used, which includes more than 84 million records from over 25,800 peer-reviewed journals, 249,000 book titles, and 240 trade publications in the areas of social, physical, health, and life sciences [61]. Scopus was preferred over Web of Science (WoS) because it puts greater emphasis on the humanities, while WoS focuses more on the exact sciences and has a larger amount of indexed data [62]. Moreover, Google Scholar was not originally searched since this SLR includes peer-reviewed articles only.

The search terms were broad to maximize the capture of studies that have estimated the relationship between consumers' WTP a premium and green hotels using the following search string: TITLE-ABS-KEY (willing\* AND pay OR wtp OR premium) AND (green OR eco OR sustain\*) AND hotel. The initial search returned 89 documents. After removing publications conference papers, book chapters, etc., and articles not written in English, the number of articles left was 77. After reading the abstracts, 20 articles were excluded, and 57 articles were left and downloaded for full-text screening. To be on the safe side, a quick search of the phrases "willingness to" and "willing to" was carried out on the articles that had been rejected on the basis of their summary. From the full-text screening, it was found that 38 articles did not meet all the inclusion criteria or met the exclusion criteria, and, finally, 19 articles were left to conduct the analysis. During the full-text review of the papers, 3 additional publications were identified and added to the list, totaling 22 articles. The screening process is illustrated in Figure 1, and the final list of the 22 selected articles is presented in Table 1.

Table 1. SLR final dataset.

| No | Title   | Reference |
|----|---|-----------|
| 1  | Stated preferences of tourists for eco-efficient destination planning options   | [63]      |
| 2  | Exploring consumer attitude and behaviour towards green practices in the lodging industry in India  | [49]      |
| 3  | A survey of tourist attitudes to renewable energy supply in Australian hotel accommodation Consumers' environmental concerns and behaviors in the lodging industry: A comparison between Greece and the United States | [64]      |
| 4  | Consumers' environmental concerns and behaviors in the lodging industry: A comparison between Greece and the United States  | [65]      |
| 5  | Are travelers willing to pay a premium to stay at a "green" hotel? Evidence from an internal meta-analysis of hedonic price premia  | [42]      |
| 6  | Hotel guests' preferences for green guest room attributes   | [66]      |
| 7  | Consumers' willingness to pay for green initiatives of the hotel industry   | [67]      |
|    | Environmental sustainability measures and their impacts on hotel room pricing in Andalusia (southern Spain)   | [68]      |
| 8  | Perception of Green Hotels Among Tourists in Hong Kong: An Exploratory Study  | [69]      |
| 9  | International tourists' environmental attitude towards hotels in Accra  | [70]      |
| 10 | Preferences and Willingness to Pay for Green Hotel Attributes in Tourist Choice Behavior: The Case of Taiwan  | [71]      |
| 11 | Sustainable Hotel Practices and Guest Satisfaction Levels   | [72]      |
| 12 | How Does Respect for the Environment Affect Final Prices in the Hospitality Sector? A Hedonic Pricing Approach  | [73]      |
| 13 | Green marketing programs as strategic initiatives in hospitality  | [74]      |
| 14 | Don't change my towels please: Factors influencing participation in towel reuse programs  | [47]      |
| 15 | Don't change my towels please: Factors influencing participation in towel reuse programs Willingness to pay for more sustainable tourism destinations in world heritage cities: The case of Caceres, Spain            | [75]      |
| 16 | Willingness to pay more to stay at a boutique hotel with an environmental management system. A preliminary study in Spain   | [76]      |
| 17 | Examination of individual preferences for green hotels in Crete   | [77]      |
| 18 | Predictors of willingness to pay a price premium for hotels' water-saving initiatives  Determinants of willingness to pay to stay at a green lodging facility   | [78]      |
| 19 | Determinants of willingness to pay to stay at a green lodging facility  | [79]      |
| 20 | Exploring travelers' willingness to pay for green hotels in the digital era   | [52]      |
| 21 | Tourist willingness to pay for local green hotel certification  | [34]      |
| 22 | Are tourists willing to pay for decarbonizing tourism? Two applications of indirect questioning in discrete choice experiments  | [80]      |

In order to conduct the analysis, seventeen variables were defined during the reading of the publications included in the final set. These variables are described in Table 2.

Table 2. Analysis variables.

| Variable                  | Description  | Type       |
|---------------------------|--|------------|
| Year of publication       | Publication year of the article  | Discrete   |
| Country of origin         | Country of the study   | Nominal    |
| Region                    | Europe, Northern America, Central America, etc.  | Nominal    |
| Journal                   | Journal title  | Nominal    |
| Valuation method          | Stated preference (contingent valuation, choice experiment, undefined, etc.); revealed preference (hedonic pricing, market price, etc.); n/a | Nominal    |
| Type of value             | Total value; use value; non-use value; n/a   | Nominal    |
| Elicitation approach      | Willingness to pay (WTP); willingness to accept (WTA); other; $n/a$  | Nominal    |
| Data collection method    | Face-to-face interviews; telephone interviews; mail survey; web survey; n/a  | Nominal    |
| Response rate             | Response rate of the survey  | Continuous |
| Sample and hotel type     | Relationship between the sample (either consumers or hotels) and the hotel type  | Nominal    |
| Nationality of the sample | National; international  | Nominal    |
| Sample size               | Sample size  | Continuous |

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Table 2. Cont.

| Variable                     | Description   | Type       |
|------------------------------|---|------------|
| Year of survey               | Data collection year  | Discrete   |
| Percentage of willing to pay | Percentage of respondents willing to pay  | Continuous |
| Monetary value               | Monetary estimate   | Continuous |
| Valuation units              | e.g., per room–night, per person, etc.  | Nominal    |
| Valuation scenario           | e.g., green hotel in general, energy savings, water savings, environmental certificates, etc. | Nominal    |

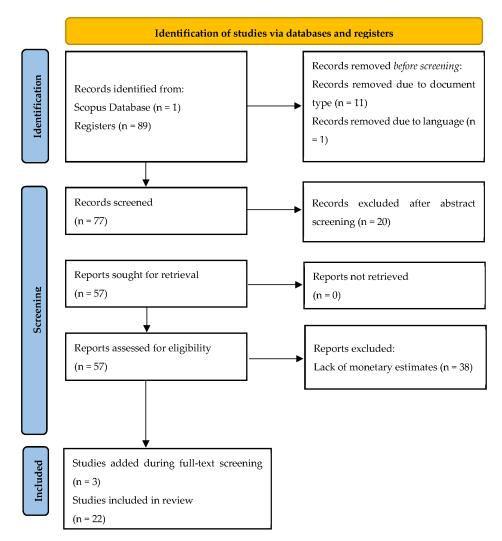


Figure 1. The screening process following PRISMA 2020 [81].

## 3. Results

# 3.1. General Profile of the Surveys

As shown in Figure 2, the research topic is relatively new, considering that all articles were published over the last fifteen years and about 70% of the publications (15 out of 22) were published in the last decade.

The publication sources comprise mainly hospitality and tourism journals (14 out of 22, or about 64%) and multi-disciplinary journals (6 out of 22, or 27%), such as the *Environmental Engineering and Management Journal*, the *Journal of Environmental Planning and Management*, *Sustainability*, and *PLoS ONE*. Further, two articles were published in topic-oriented journals (*Agricultural and Resource Economics Review* and *Renewable Energy*). The number of publications per journal is presented in Table 3.

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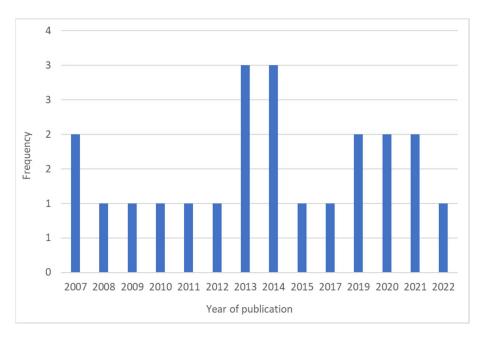


Figure 2. Year of publication.

**Table 3.** List of journals and number of articles published.

| Journal Title   | Frequency |
|---|-----------|
| Agricultural and Resource Economics Review                      | 1         |
| Cornell Hospitality Quarterly                                   | 2         |
| Environmental Engineering and Management Journal                | 1         |
| International Journal of Contemporary Hospitality Management    | 1         |
| International Journal of Hospitality and Tourism Administration | 1         |
| International Journal of Hospitality Management                 | 1         |
| Journal of Environmental Planning and Management                | 1         |
| Journal of Quality Assurance in Hospitality and Tourism         | 1         |
| Journal of Services Marketing                                   | 1         |
| Journal of Sustainable Tourism                                  | 1         |
| Journal of Travel and Tourism Marketing                         | 2         |
| PLoS ONE  | 1         |
| Renewable Energy  | 1         |
| Services Marketing Quarterly                                    | 1         |
| Sustainability  | 3         |
| Tourism Management  | 2         |
| Tourismos   | 1         |
| Total   | 22        |

Figure 3 illustrates the distribution of surveys per country. Most of the surveys (10 out of 22, or 45%) were conducted in European countries. More specifically, five studies took place in Spain [68,73,75,76,78], three in Greece [47,65,77], and two in Italy [52,80]. Further, five studies were conducted in Asia (namely, in China [74], Hong Kong [69], India [49], Indonesia [34], and Taiwan [71]) and Northern America (four studies in the USA [42,65–67] and one in Canada [63]), and, finally, one study was conducted in Africa (Ghana [70]), one in Central America (Mexico [72]), and one in Oceania (Australia [64]).

Table 4 presents the distribution of the studies per country and year. It is important to note that during the last five years, six out of seven studies have taken place in Europe, signaling an interest in the topic.

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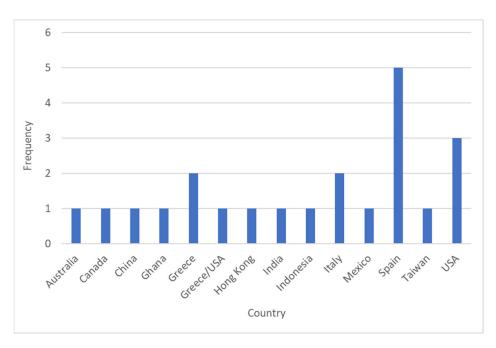


Figure 3. Country of survey.

**Table 4.** Distribution of studies per country and per year.

| 2007            | 2008      | 2009          | 2010 | 2011 | 2012 | 2013                        | 2014                      | 2015  | 2017   | 2019       | 2020            | 2021               | 2022  |
|-----------------|-----------|---------------|------|------|------|-----------------------------|---------------------------|-------|--------|------------|-----------------|--------------------|-------|
| Canada<br>India | Australia | Greece<br>USA | USA  | USA  | USA  | Ghana<br>Hong Kong<br>Spain | Mexico<br>Spain<br>Taiwan | China | Greece | Spain (×2) | Spain<br>Greece | Indonesia<br>Italy | Italy |

## 3.2. Methodological Issues

Most studies (19 out of 22) used a stated preference approach, that is a questionnaire-based survey, and the rest were conducted employing a revealed preference method (e.g., [82–84]). In regard to the stated preference (SP) surveys, five studies [34,47,74,75,78] implemented the contingent valuation method (CVM), four studies [63,71,77,80] conducted choice experiments (CEs), one study [66] used conjoint analysis (CA), one study [52] applied a multiple price list mechanism (MPL), and, finally, one study [69] conducted a qualitative analysis (QA) through in-depth interviews in a limited sample. In the rest of the SP studies, the valuation method is not specified. However, the methodological setting is based on the CVM. All three revealed preference (RP) studies [42,68,73] used hedonic models. The distribution of the studies per region and valuation method is given in Table 5.

**Table 5.** Distribution of valuation method studies per region.

|                         | RP | SP/CE | SP/CA | SP/CVM | SP/MPL | SP/QA | SP/Undefined |
|-------------------------|----|-------|-------|--------|--------|-------|--------------|
| Africa                  |    |       |       |        |        |       | 1            |
| Asia                    |    | 1     |       | 2      |        | 1     | 1            |
| Central America         |    |       |       |        |        |       | 1            |
| Europe                  | 2  | 2     |       | 3      | 1      |       | 1            |
| Europe/Northern America |    |       |       |        |        |       | 1            |
| Northern America        | 1  | 1     | 1     |        |        |       | 1            |
| Oceania                 |    |       |       |        |        |       | 1            |
| Total                   | 3  | 4     | 1     | 5      | 1      | 1     | 7            |

By nature, SP approaches can elicit the total economic value (i.e., use and non-use economic values), while RP approaches can measure only use values (e.g., [82–84]). None of the studies describe explicitly the economic value measured. Therefore, at least for the

SP surveys, it is unknown whether the economic value is driven mainly by self-interested motives (use value) or altruistic, bequest, and existence values (non-use value, e.g., [85–87]).

As far as the elicitation approach is concerned, all studies have estimated consumers' WTP for staying at green hotels or for enjoying specific green hotel attributes (it is noted that in the RP studies, this is measured through implicit prices for green hotels). In regard to the data collection method, the three RP surveys used online search engines to extract the relevant information or developed their databases through questionnaires administered to hotel managers. Further, six SP surveys employed face-to-face interviews [34,47,69,74,78,80], nine used web or mail self-administered questionnaires [52,63,66,67,70–72,76,77], and one used a combination of interviewer- and self-administered data collection [64]. Finally, three articles do not provide details about the data collection method adopted.

Focusing on the survey samples, half of the studies do not provide information on the relationship between the sample (either consumers or hotels) and the hotel type. For the rest of the surveys, the distribution of this relationship per country and per valuation method is as follows:

#### A. RP studies:

- One survey used a sample of 223 'green' and 'brown' one-star to four-star motels, hotels, and resorts from Virginia, USA [42];
- Two surveys used a sample of 216 and 232, respectively, three-star, four-star, and five-star hotels from Andalusia, Spain [68,73].

# B. SP studies:

- One survey collected responses from the guests of two 'city resorts' and two
  'eco-resorts' in Australia located in high-density tourism locations in more remote
  areas (face-to-face and self-administered survey with 280 participants) [64];
- One survey collected responses from tourists staying in five four-star hotels and one three-star hotel in Benidorm, Spain (interviewer-administered survey with 681 participants) [78];
- One survey gathered information from a national sample of clients of boutique hotels in Spain (an online survey with 340 participants) [76];
- One survey used a sample from people who requested tourism information for destination marketing organizations in Arizona, Florida, and Texas, USA, and their hotels were categorized as economy, mid-priced, and luxury (online survey with 455 participants) [67];
- One survey investigated tourists visiting the Gili Trawangan island, Indonesia, categorizing their hotels into four classes based on the cost per night, i.e., '1' if <9 USD/night; '2' if 9–15 USD/night; '3' if 15–30 USD/night; '4' if >30 USD/night (interviewer-administered survey with 535 participants) [34];
- One survey interviewed tourists in different tourism hotspots, in Greece, categorizing their hotels as low-, mid-, and high-priced (interviewer-administered survey with 1304 participants) [47];
- One survey was carried out in the National Capital Region of Delhi, India, and categorized respondents' hotels as luxury, high-end, economy, and resort hotels (non-defined data collection method with 66 participants) [49];
- One study collected information from tourists in San Miguel de Allende, Mexico, who were staying mostly in boutique-style hotels, three-star and four-star hotels, and inns (self-administered survey with 303 participants) [72].

Moreover, in regard to the nationality of the sample, in nine studies, both national and foreign tourists/customers were surveyed [34,47,64,69,70,72,74,75,78], in eight studies, only national participants were considered [49,52,63,65–67,71,76], and in two surveys, the nationality of the sample remains unclear [77,80].

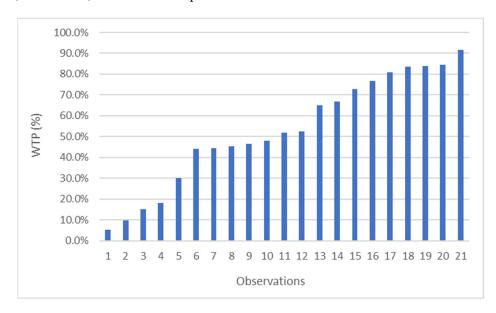
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## 3.3. Valuation Scenario, WTP and Size of the Premium

Regarding the valuation scenario of the SP surveys, more than 40% (9 out of 22) of the studies—regardless of the valuation method—explored consumers' WTP for staying at green hotels in general. Further, one study also investigated WTP for green hotels, without determining specific green services, but it focuses on boutique hotels only [76]. The rest of the studies examine more specific valuation scenarios, as follows:

- One survey examined WTP for land-use, transportation, recreation, and other environmental initiatives to promote eco-efficiency in tourism areas [63];
- One survey estimated WTP for hotels with renewable energy supply (RES) [64];
- One survey investigated WTP for supporting a towel reuse program [47];
- One survey estimated WTP for four different attributes of green hotels, namely "Energy Savings", "Certified environmental policy", "Waste management policy", and "Wastewater management policy" [77];
- One study estimated WTP for staying at a hotel with green certification [34];
- One study assessed WTP for environmental certification and GHG emissions compensation [80];
- One study examined WTP for staying at a hotel offering an environmental program that includes reduction in waste and energy consumption and use of renewable energy [74];
- One study focused on WTP a premium to offset carbon footprint [72];
- One survey explored WTP for hotels with water-saving devices [78].

Information about WTP more to stay at a green hotel or to support green practices in the hospitality sector exists in 15 out of 22 surveys (this information is not relevant for the three RP surveys and is not provided in four SP surveys). The percentage of survey participants who are willing to pay more ranges between 5.4% and 91.6%, depending on the SP method used, the investigated country, the data collection method, and the valuation scenario. In total, there exist 21 observations (Figure 4), with a mean value equal to 53.2% (s.d. = 26.5%) and a median equal to 51.9%.



**Figure 4.** Distribution of respondents' WTP for supporting green hotels/green practices (in %).

The highest WTP acceptance rates (over 70%) are observed in four studies that were conducted in Mexico, Ghana, Hong Kong, and Indonesia, and the lowest rates (less than 15%) are recorded in three studies that were carried out in India, the USA, and Taiwan. As shown in Tables 6–8, there is no clear association between WTP and other survey characteristics that could lead to a firm conclusion.

**Table 6.** Distribution of WTP acceptance rates per region.

| Australia  | Ghana      | Greece     | Hong Kong  | India      | Indonesia  | Italy      | Mexico  | Spain                            | Taiwan                                 | USA   |
|------------|------------|------------|------------|------------|------------|------------|---|----------------------------------|--|---|
| 48.0% [64] | 84.0% [70] | 44.1% [47] | 76.6% [69] | 15.0% [49] | 72.7% [34] | 51.9% [52] | Overall: 84.5%;<br>Mexican: 83.6%;<br>American: 91.6%;<br>other: 81% [72] | 2012: 45.3%;<br>2016: 40.0% [75] | 5.4% (based on a<br>WTP question) [71] | 18% business travelers;<br>9.8% leisure<br>travelers [66] |
|            |            | 64.6% [65] |            |            |            |            |   | 44.3% [78]                       |  | 30% based on WTP question;<br>66% based on the            |
|            |            |            |            |            |            |            |   | 54.2% [76]                       |  | premium question [67]<br>66.2% [65]                       |

**Table 7.** Distribution of WTP acceptance rates per valuation method.

| SP/CE                          | SP/CA   | SP/CVM   | SP/MPL | SP/QA | SP/Undefined   |
|--------------------------------|---|--|--------|-------|--|
| 5.4% (based on a WTP question) | 18% for business and 9.8% for leisure travelers | 44.1%<br>44.3%<br>72.7%<br>2012: 45.3%;<br>2016: 40% | 51.9%  | 76.6% | 15.0%<br>48.0%<br>54.2%<br>Overall: 84.5%;<br>Mexican: 83.6%; American: 91.6%; other: 81%<br>84.0%<br>30% based on WTP question;<br>66% based on the premium question<br>Greece: 64.6%; USA: 66.2% |

**Table 8.** Distribution of WTP acceptance rates per hotel type.

| 'City Resorts' and<br>'Eco-Resorts' | 3-Star and 4-Star<br>Hotels | Boutique Hotel | Economy, Mid-Priced,<br>Luxury  | Four Hotel Categories<br>(<9 USD/Night; Up to<br>>30 USD/Night) | Low-, Mid-, and<br>High-Priced Hotels | Luxury,<br>High-End, Economy,<br>Resort Hotels | Mostly Boutique-Style,<br>3- and 4-Star Hotels,<br>and Inns          |
|-------------------------------------|-----------------------------|----------------|---|---|---------------------------------------|--|--|
| 48.0%                               | 44.3%                       | 54.2%          | 30% based on WTP<br>question;<br>66% based on the<br>premium question | 72.7%   | 44.1%                                 | 15.0%  | Overall: 84.5%;<br>Mexican: 83.6%;<br>American: 91.6%;<br>other: 81% |

Those who refuse to pay usually claim that the financial benefits from the energy and resources savings are enough, and thus no further support from the customers is required. Hence, they believe that there should be no price difference between green and traditional hotels (e.g., [66]), or they believe they require a discount to become involved in environmental practices (e.g., [71]).

The analysis of the 22 studies provided 56 different estimates regarding the amount of money that people are willing to pay for staying at green hotels or for supporting green practices relating to the hotel industry (Table 9).

Most of the estimates (i.e., about 60%) are expressed on a percentage basis. In all cases but two, the payment vehicle involves a premium on the price of a room in a green hotel. More specifically, the first study estimated consumers' WTP for eco-efficient planning options in hypothetical mountain resorts through an environmental tax on their accommodation, restaurant, and activity bills [63], and the second study implemented the donation of a daily amount for each day of staying with a local conservation group [47]. Additionally, all studies but one reported positive values regarding the premium that consumers are willing to pay. The study that found a negative implicit price (i.e., consumers would require a discount to accept their participation in cooperative environmental behavior) used a choice experiment and explored consumers' preferences for hotels' green attributes [71]. The discount that consumers would accept is about USD 11. It is mentioned that this study reported also the lowest WTP rate (i.e., 5.4%).

Based on the positive estimates, it seems that both revealed and stated preference studies converge on the assessment that a premium of between 4% and 6% would be acceptable from the consumers' side. Two studies in the USA [66] and Hong Kong [69] estimated a premium of about 10%. In the study carried out in the USA, however, the percentage of the respondents who were willing to pay is relatively low (18% for business and 9.8% for leisure travelers, respectively). In absolute terms, the premium is around USD 5 per room per night. Lower estimates (around USD 1.5–2) are observed in developing countries, e.g., Indonesia [34] and Ghana [70]. Yet, based on the average cost per night, these amounts correspond to a premium of about 4%. The highest estimates, between USD 9 USD and 26, were found in a revealed preference study conducted in the USA [42] using data on the room rates and amenities of "green" and "brown" hotels in Virginia. Moreover, from two studies where national and foreign tourists were surveyed and separate estimates are reported (i.e., [72,75]), it was observed that foreign tourists are willing to pay more.

As mentioned, some studies have valued specific green products or services in the hotel sector. According to the available estimates, energy efficiency interventions are valued between USD 0.9 and 1.5 (all values have been converted at an exchange rate of USD 1 = EUR 0.93) per person per night [77] or an additional 4.5–5.15% per room per night [68,73]. Moreover, consumers would be willing to pay a premium of at least 1–5% to stay in a hotel that uses RES [64] or a premium of USD 3.8–5.3 per room per night [72] and USD 11 per person per night [80] to compensate for their carbon emissions [72]. Practices aiming at reducing water consumption or re-using wasted water are estimated between USD 2 [47] and 4 per room per night [78] and USD 2.4–2.8 per person per night [77] or an additional 4.5-5.15% per room per night ([68,73]). Additionally, waste recycling and effective management policies are valued at USD 0.5-2.5 per person per night [77] or an additional 4.5–5.15% per room per night ([68,73]). Hotel guests would be willing to pay between USD 1.6 [77] and 9 [80] per person per night, or a premium between USD 1.55 [34] and 9–26 [42] per room per night or between 4.16% [73] and 5.33% [68] per room per night for hotels with environmental certification. Finally, one study estimated that boutique hotel customers would be willing to pay a premium of 5% for boutique hotels with an environmental management system.

**Table 9.** Average premium estimated per valuation scenario, country, population, and valuation method.

| Valuation Scenario  | Country                          | Population   | RP   | SP  | References                   |
|---|----------------------------------|--|--|---|------------------------------|
| Environmental tax for eco-efficient planning options  | Canada                           | Overnight and day visitors   |  | 2–4%  | [63]                         |
| Donation of a daily amount for a towel reuse program (Euros per day per room) Premium for staying at green hotels (%)   | Greece                           | Greek and foreign tourists   |  | EUR 2.15  | [47]                         |
| Tremum for staying at green noters (70)   | India                            | General public   |  | 4–6%  | [49]                         |
|   | Greece                           | University students  |  | 2–6%: 35.6%<br>over 6%: 28.8%   | [65]                         |
|   | USA                              | University students  |  | 2–6%: 32.4%<br>over 6%: 33.8%   | [65]                         |
|   | USA<br>USA<br>Hong Kong<br>Spain | Business travelers<br>Leisure travelers<br>Chinese and overseas tourists<br>Clients of boutique hotels |  | 9.1%<br>8.9%<br>11.6%<br>5%   | [66]<br>[66]<br>[69]<br>[76] |
|   | Italy                            | Italian travelers who stayed at<br>Italian hotels<br>People who requested tourism                      |  | 28.5% (based on the average cost per night)                                     | [52]                         |
|   | USA                              | information for destinations in<br>Arizona, Florida, and Texas.  |  | 3.7%  | [67]                         |
| Premium for accommodation with RES (%) Premium for a one-week stay at a green hotel (USD)   | Australia<br>Ghana               | Hotel customers<br>International tourists  |  | At least 1–5%<br>USD 13.3   | [64]<br>[70]                 |
| Premium for staying at certified green hotels (USD)   | USA                              | 1-star to 4-star motels, hotels, and resorts   | Between USD 9 and 26                               |   | [42]                         |
| Premium for (%):  -Quantification of environmental costs and savings -Employees' training on environmental issues (%) -Application of "green purchasing" policies (%) -Environmental marketing strategies and campaigns (%) -Implementation of energy and water saving measures (%) -Waste recycling (%) -Encouragement of environmental awareness among employees (%)  | Spain                            | 3-star, 4-star, and 5-star hotels  | 4.51%<br>4.51%<br>4.51%<br>4.51%<br>4.51%<br>4.51% |   | [68]                         |
| -Environmental quality certificates (%) Premium for (%): -Quantification of environmental costs and savings -Employees' training on environmental issues (%) -Application of "green purchasing" policies (%) -Environmental marketing strategies and campaigns (%) -Implementation of energy and water saving measures (%) -Waste recycling (%) -Encouragement of environmental awareness among employees (%) -Environmental quality certificates (%) | Spain                            | 3-star, 4-star, and 5-star hotels  | 5.33% 5.15% 5.15% 5.15% 5.15% 5.15% 5.15% 4.16%    |   | [73]                         |
| Premium for a double-bed room for environmentally   | Taiwan                           | General public   | 4.10 /0  | USD -11.2   | [71]                         |
| cooperative behavior (USD)  | 1aiw an                          | General public   |  | EUR 5.94 (2012)   | [/1]                         |
| Premium for a double room to a sustainable hotel (EUR)  | Spain                            | Spanish and foreign tourists   |  | EUR 5.94 (2012)<br>EUR 7.60 (2016)<br>EUR 6.42 (national)<br>EUR 9.02 (foreign) | [75]                         |

Table 9. Cont.

| Valuation Scenario  | Country   | Population  | RP | SP   | References           |
|---|-----------|---|----|--|----------------------|
| Premium to offset carbon footprint (USD)  | Mexico    | Mexican tourists<br>American tourists<br>Other tourists |    | USD 3.8<br>USD 5.3<br>USD 4.0  | [72]<br>[72]<br>[72] |
| Premium for a hotel offering an environmental program that  |           |   |    |  |                      |
| includes reduction IN waste and energy consumption and use of renewable energy (%)  | China     | Chinese and foreign tourists                            |    | 3.8%   | [74]                 |
| Premium over the mean price of a standard double room for a boutique hotel with an environmental management system (%)  | Spain     | Clients of boutique hotels                              |    | 5%   | [76]                 |
| Premium per person per night for (EUR): -Energy savings (for appliances with A++ energy class) -Energy savings (for smart windows technology) -Energy savings (for bioclimatic architecture) -Environmental certification -Waste management policy -Waste recycling schemes -Water management (reduce water use) -Water management (reuse wasted water) | Greece    | Hotel visitors  |    | EUR 1.0<br>EUR 1.4<br>EUR 1.8<br>EUR 1.7<br>EUR 2.7<br>EUR 0.6<br>EUR 3.0<br>EUR 2.6 | [77]                 |
| Premium to stay in a hotel with water-saving devices (EUR)  | Spain     | Spanish and foreign tourists                            |    | EUR 4.29 (about 4% based on the average cost per night)                              | [78]                 |
| Premium for a hotel with Green Award environmental certification (USD)  | Indonesia | National and foreign tourists                           |    | 3 1 0 /  | [34]                 |
| -Overall average  |           |   |    | USD 1.55 (about 4% based on the average cost per night)                              |                      |
| -For nightly rates up to USD 27.70<br>-For nightly rates mor than USD 27.70<br>Premium per person per night for (EUR)<br>-Travelife certification<br>-Carbon emissions compensation   | Italy     | Tourists at hotels                                      |    | the average cost per night) USD 1.03 USD 1.64 EUR 9.70 EUR 11.91                     | [80]                 |

# 3.4. Factors Affecting the Premium's Size

To date, there are dozens of studies in the international scientific literature that have investigated the factors that influence consumers' WTP for green hotels, as well as some reviews of this literature (e.g., [47,54]). Therefore, and for reasons of conciseness, this section focuses on the factors affecting the size of the premium that consumers would be willing to pay for green hotels and green hotel products and services.

From the analysis of the findings of the studies, the following factors have been found to influence the size of the premium:

- The accommodation type: According to some studies [64,67,78], customers who stay at more luxury hotels and pay more are also willing to spend more on green initiatives;
- Days of hotel accommodation: The days spent in a hotel seem to be positively correlated with the amount that customers are willing to pay [47];
- Nationality of the respondents: Some studies, where both national and international tourists have been surveyed or have been conducted in different countries for comparative reasons, provide no evidence for variation in the premium (e.g., [64]). On the other hand, there are studies indicating the opposite [65,72,75]. The differences are not attributed only to income inequalities but to cultural factors as well [65];
- Environmental awareness: Some studies show that respondents' attitude towards environmental concerns affects the size of the premium. For instance, Kang et al. [67], using the New Ecological Paradigm (NEP) scale, suggested that there is a positive relationship between NEP and the premium. Yet, Casado-Díaz et al. [78] found that those who were willing to make sacrifices to save water during their stay at the hotel would pay a lower premium;
- Age of the respondents: Some studies suggest that younger customers are willing to
  pay more for green hotels or green initiatives [47,76], while other studies failed to find
  statistical significance [52,75];
- Gender: Some studies argue that gender affects the size of the premium, while others
  conclude the opposite [52,75]. For example, Kang et al. [67] and Jurado-Rivas and
  Sánchez-Rivero [75] found that males are willing to pay a higher premium than
  females, but Galati et al. [51] and Fuentes-Moraleda et al. [76] found no difference
  between males and females;
- Income level: Galati et al. [52] (at the 10% level) and Fuentes-Moraleda et al. [76] argue that income is positively correlated with the premium that hotel customers are willing to pay. Contrary to other studies, Kang et al. [67] found a negative correlation between income level and the size of the premium;
- Other demographics: The findings vary between studies. For instance, educational level, number of children, and marital status have no influence according to Kang et al. [67]. Similar results are reported by Galati et al. [52], Fuentes-Moraleda et al. [76], and Casado-Díaz et al. [78]. On the contrary, Dimara et al. [47] argue that family size and educational level have a positive impact on the amount that respondents would be willing to pay. Additionally, Jurado-Rivas and Sánchez-Rivero [75] found that tourists with higher education levels were willing to pay more.

#### 4. Discussion and Conclusions

Although thousands of non-market valuation studies have been published and a plethora of studies have been conducted on consumers' willingness to pay a premium for staying at green hotels or for supporting green initiatives in the hotel sector, only a limited number of studies have estimated the monetary value of the premium. This fact alone shows that research in this field is still in its infancy. This review aimed to investigate the literature on this particular topic by means of three principal research questions and provided some key conclusions relating to the main valuation methods used to estimate the premium, the size of the premium, and the factors affecting the premium. The main results are summarized in Table 10.

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| Table 10. Summarized | answers to | the three | research questions. |
|----------------------|------------|-----------|---------------------|
|----------------------|------------|-----------|---------------------|

| Research Question   | Summary Results   |
|---|---|
| RQ1: What are the main valuation methods used to estimate the premium that consumers would be willing to pay? | Most studies (19 out of 22) have used a stated preference approach. Specifically, five studies implemented the contingent valuation method (CVM), four studies conducted choice experiments (CEs), one study used conjoint analysis (CA), one study applied a multiple price list mechanism (MPL) and, finally, one study conducted a qualitative analysis (QA) through in-depth interviews in a limited sample. In the rest of SP studies, the valuation method is not specified. All three revealed preference (RP) studies have used hedonic models. |
| RQ2: How much are consumers willing to pay for green hotel services?  | Based on a pool of 56 different values, WTP for green hotels ranges from $1\%$ to $28.5\%$ , or in absolute terms, from USD $-11.2$ (the only study reporting a negative implicit price) to 26 per night. More than $85\%$ of the estimates (from both stated and revealed preference studies) report that consumers would be willing to pay a premium of $4$ – $6\%$ per night.  |
| RQ3: Which are the factors affecting the premium that consumers would be willing to pay?                      | Accommodation type; days of hotel accommodation; nationality and related cultural factors; environmental awareness; age; gender; income level; other demographics (e.g., family size and educational level).  |

In relation to previous research efforts reviewing consumers' perceptions of and willingness to stay at green hotels and the factors affecting their choices (e.g., [29,47,50,51]), this study differs by focusing on the premium that consumers would be willing to pay to stay at a green hotel. This is an issue of considerable interest from both a policy and a managerial perspective.

From a policy perspective, the lack of studies on how much money consumers would be willing to pay for green hotel services is a serious obstacle to the hotel industry's efforts to reduce its environmental footprint. For the hoteliers, it is not enough to know whether their customers are prepared to pay more for green services, but also how much more, as the sustainability process involves large investments and usually increased operating costs.

From a managerial perspective, it can be argued that the existing studies show that those who are willing to pay would accept a premium of around 5% on the price of the room per night to stay at a green hotel, i.e., a hotel that holds an environmental certificate and/or implements green practices (such as energy- and water-saving measures, waste recycling, etc.) or to offset their carbon footprint. Although a handful of studies have estimated separate WTP values for specific green services, it would be risky to aggregate these individual values in the presence of potential part-whole bias. Moreover, it should be remembered that not all customers agree to pay a premium.

Beyond the undeniable need for more valuation studies, future research efforts should address specific gaps and limitations of the current studies identified by this review and discussed hereinafter. First, future studies should focus on wider geographical coverage. Nowadays, monetary estimates are available only for thirteen countries, i.e., Australia, Canada, China, Ghana, Greece, Hong Kong, India, Indonesia, Italy, Mexico, Spain, Taiwan, and the USA. The existing limited sample does not allow for systematic comparisons of geographical differences at both national and regional levels due to cultural and other variations. Second, provided that the accommodation type affects the size of the premium, future studies should investigate more thoroughly (e.g., using split-sample designs) the role of this parameter. When SP approaches are used, this can be accomplished by surveying tourists staying in different types of accommodation. In the case of RP methods, hedonic models based on pooled and split samples should be tested to disaggregate the effect of the accommodation type. This effort can be facilitated by online platforms that include millions of accommodation listings and provide information on accommodations' level of sustainability, such as the "Green Leaders" program of TripAdvisor or the "Travel Sustainable" badge of Booking.com. Third, future efforts should shed more light on the factors affecting the amount that hotel guests would pay for green initiatives. From the already limited number of existing studies, less than ten provide knowledge on this issue, and the findings are inconclusive. Finally, although it was not the intention of this work to analyze potential methodological shortcomings, some issues were noted that should

be considered in future efforts. To mention a few, some SP studies do not follow a strict methodological framework as defined by the relevant scientific literature. In other cases, even the method used is not explicitly mentioned. Another problem is related to the size of the sample, which in some studies is small and therefore does not allow for the generalization of the research findings. Additionally, none of the existing SP studies used follow-up questions to elicit information about the respondent's motivation, nor do they distinguish between use and non-use values.

The current review has also limitations. First, the analysis focused solely on scientific articles published in peer-reviewed journals and excluded conference proceedings, book chapters, or any other "grey literature" (e.g., reports, working papers, government documents, etc.). Second, the search was limited to articles in the Scopus database. Although Scopus includes more records than WoS and the latter focuses more on the exact sciences, some articles that may have been included in WoS alone may have been overlooked. Third, the review included only articles written in English. Therefore, some work that exists in other languages may also have been missed. Furthermore, the selection of the papers was carried out by a single researcher, which increases the possibility of error in the inclusion or exclusion of some articles. Additionally, the analysis of the selected articles was performed without the use of any software. It should, however, be noted that the total number of final articles is small. Finally, to identify and collect relevant studies, the selected keywords were applied to the title, abstract, and keywords of the papers. Considering that three papers were not retrieved from Scopus, but rather they were identified and added to the list during the full-text review of the papers, it is possible that some other relevant articles may have been ignored.

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