

Article

An Evaluation of Green Ryokans through a Tourism Accommodation Survey and Customer-Satisfaction-Related CASBEE–IPA after COVID-19 Pandemic

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Abstract: Following the outbreak of the COVID-19 pandemic, it became significant to study how to improve the customer satisfaction for Japanese tourist accommodations for restart and recovery in the future, and in preparation for the 2021 Japan Olympics. Therefore, the current paper attempts to evaluate ryokans through descriptive statistics from a tourism accommodation survey and customer-satisfaction-related comprehensive assessment system for built environment efficiency (CASBEE) importance–performance analysis (IPA). Through three progressive studies, three findings were obtained: (1) ryokans are more flexible than hotels, have strong anti-risk capabilities, and have received more and more attention from tourists and support from the Japanese government; (2) improvement strategies for customer satisfaction after COVID-19 were provided from IPA; and (3) a dynamic evaluation model of green ryokans was discussed and may be employed in other countries and regions experiencing the same situation.

Keywords: green ryokan/B&B; green hotel industry; customer satisfaction; dynamic evaluation model; green building; comprehensive assessment system for built environment efficiency (CASBEE); importance–performance analysis (IPA); COVID-19 pandemic



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1. Introduction

In 2003, the SARS crisis created a window of opportunity (e.g., green/health physical environment of hotels) to change the development of the tourism industry [1]. The negative impact of COVID-19 on the tourism and hotel industries in Japan and globally is even more serious than that of SARS [2]. At the end of May 2020, foreign customers in Japan decreased by 98.6% compared to the same period in 2019, while local customers decreased by 81.6%, and the total decreased by 84.8%. Therefore, it became significant to conduct research on the Japanese green accommodation industry, to examine how to improve the customer satisfaction for Japanese tourist accommodation after COVID-19, then to restart and restore the accommodation industry in time to welcome the 2021 Japan Olympic Games and for its longer-term development in the future. Ryokans were selected as the research target because they are more flexible than hotels and have stronger anti-risk capabilities after COVID-19. For example, after the outbreak of COVID-19, the occupancy rate of ryokans dropped by less than that of hotels. This situation is similar to the health crisis of the nuclear leak in March 2011. Moreover, ryokans have received more and more attention from tourists, and more and more support from the Japanese government [3,4].

The global changes have exceeded our expectations following the outbreak of COVID-19. Therefore, the current paper attempts to establish a new dynamic green evaluation model for ryokans (study 3) through descriptive statistics (study 1) from a tourism accommodation survey and comprehensive-assessment-system-for-built-environment-efficiency (CASBEE)-based importance–performance analysis (IPA) (study 2) (Figure 1). CASBEE is an evaluation model for green built environments. It has tools to evaluate buildings, cities, urban areas, houses, market promotions, and community health. However, CASBEE does not have a dedicated and independent evaluation system for hotels (especially ryokans) [5]. Many previous papers have found that green customer satisfaction has positive correlations with green buildings and hotels [6–8]. CASBEE-based measurement items for a questionnaire survey of customer satisfaction with green ryokans were identified by the Delphi method, with 11 green building experts included in this study. Although this process may be controversial, this study has taken a first step to try to fill the gaps in CASBEE for ryokans, and change the original inherent evaluation model and evaluation system. The CASBEE-IPA-based dynamic model can help improve ryokans and tourism accommodation after COVID-19, and it can also be employed in other countries and regions experiencing the same situation.

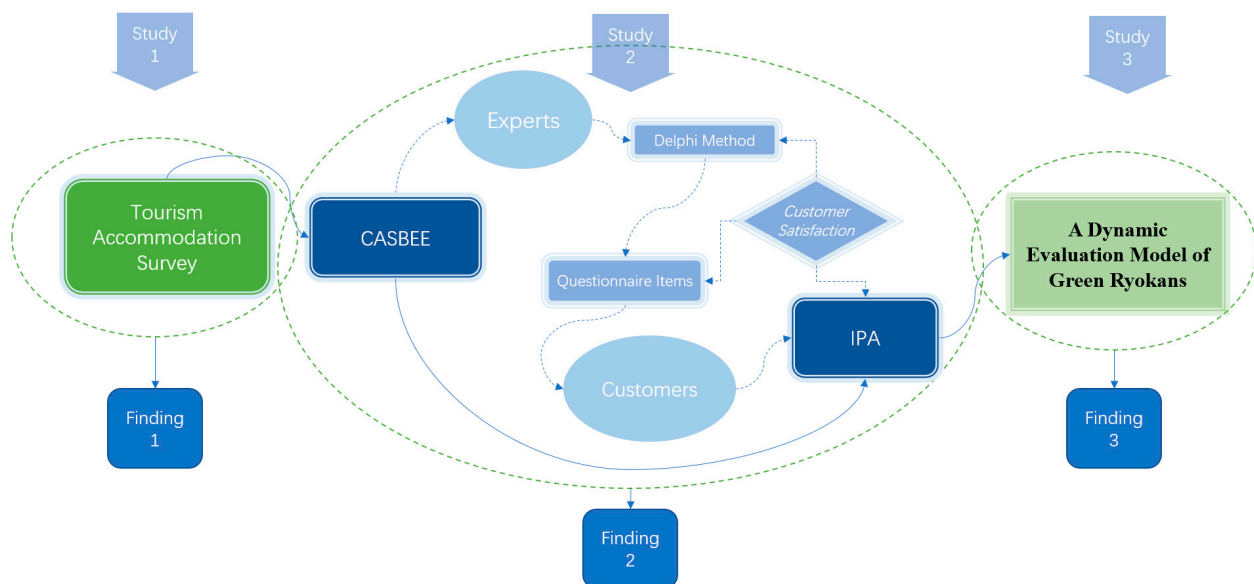


Figure 1. The logical model. Note: CASBEE = customer-satisfaction-related comprehensive assessment system for built environment efficiency, IPA = importance–performance analysis (IPA).

On the other hand, among foreign tourists, the influence of Chinese tourists and the pursuit of Japanese ryokans are increasing year by year. Chinese tourists' total annual consumption accounted for half of all foreign tourists' consumption in the past decade. Therefore, this paper selected Chinese tourists as the survey object. This paper used Questionnaire Star (Changsha Ranxing Information Technology Co., Ltd., Changsha, China) to make questionnaires and send them through social software, such as WeChat (Tencent, Shenzhen, China). Each questionnaire had a 1–5 RMB red envelope as a reward for the respondent. The data were selected from 357 travelers who had experienced ryokans in Japan before COVID-19. The IPA was used as the principal tool of questionnaire design and analysis. Through three progressive studies, three findings were obtained (Figure 1).

2. Literature Review

2.1. New Opportunities for Green Hospitality after COVID-19

2.1.1. Crisis with a New Future

COVID-19 and SARS had a similar impact on tourism [9]. In 2003, SARS created a new opportunity in tourism development [10]: nature-based areas became new target

destinations [11,12]. Some previous papers also analyzed the annual growth rates in international tourists visiting Japan from the top ten countries between 2016 and 2018 and indicated that the annual growth rates of guests at rural and urban tourism accommodation in Japan were not equal [13,14]. Previous papers also studied SARS and hospitality with a focus on Asia (e.g., Hong Kong, Singapore, Korea) [15–18]. Before the outbreak of COVID-19, other epidemics such as H1N1 swine flu in 2009 were also studied in terms of the hotel industry response [19]. After the outbreak of COVID-19, some scholars studied the socio-economic implications of COVID-19 for the hospitality and tourism industry [20,21]; others studied the marketing and management of COVID-19 in the hospitality and tourism industry [22,23]. Wen et al. [24] stated that “disparate research domains can cooperate on timely research endeavors, including but not limited to COVID-19.” Rivera [25] stated that it (COVID-19) might temporarily immobilize our collective activities, but will not limit research ideas. Some previous papers found relationships between tourism and the crisis (e.g., COVID-19) in Japan [26–28]: (1) a crisis causes significant damage to tourism in Japan, but the negative impact reduces over time; (2) changes in customer satisfaction after a crisis are different for tourists with different countries of origin; and (3) the impacts of customer satisfaction at different destinations on travel intention change after a crisis in Japan.

2.1.2. The Green Hotel Industry and Ryokans

In the past, experts have carried out research on many aspects of green hotels. Suki [29] studied the green hotel from the perspective of consumers’ environmental behavior. Wu et al. [30] studied green bed and breakfast (B&B) service innovation. In North America, a major paper focused on the factor of sustainability and green B&Bs in Canada [31,32]. In Asia, a major paper focused on eco-marketing strategies in Taiwan [33,34]. Moreover, some previous papers have also studied the sustainable and green hotel evaluation model [32,35,36]. There were some different definitions of ryokans (there is currently no precise definition) in the previous studies [4,37–39]. A guesthouse is an inexpensive type of accommodation for those staying in Japan for one month or longer who want to avoid the hassle and the expense of renting and furnishing a conventional apartment. Ryokans and minshuku are part of a whole range of accommodation options for travelers in Japan. Far from being business hotels or Western hotels, ryokans and minshuku (including B&Bs) are a uniquely Japanese experience. Ryokans (旅館, literally “travel building”) are traditional Japanese inns. Although ryokans have low occupancy rates and inbound guest ratios, the independence of the ryokan, internet availability, hot spring facilities, and the number of World Heritage sites are effective in capturing demand [40,41]. However, few previous papers have focused on the study of a green ryokan evaluation model for post-COVID-19. Therefore, green ryokans should be a focus after the COVID-19 crisis.

2.2. Green Customer Satisfaction with Recovery

Green satisfaction is the level of satisfaction related to customers’ green consumption, green needs, environmental demands, and sustainable expectations [42,43]. Green satisfaction also has positive correlations with green hotels in previous studies [6,7]. Moreover, Chen et al. [8] found that satisfaction has positive correlations with green buildings’ indoor environmental quality and green perceived quality. In the tourism industry, customer satisfaction is an important aspect of customer service [43–46]. Some scholars pointed out that service is linked to satisfaction, because service directly affects people [47]. The satisfaction of tourists is an important factor for tourists’ determination to visit attractions again [45,48,49]. After a survey of 412 overseas tourists at Taiwan’s international hotels, it was found that consumer sentiment, tourist complaints, perceived value, and service quality are related to customer satisfaction [50]. Therefore, promotion of green satisfaction is important for post-crisis recovery. Akinci et al. [51] and Han et al. [52] studied the destination decision-making of satisfaction with spatial health and revisit intention. Jung et al. [53] studied the relationships among service recovery and customer satisfaction and word-of-mouth.

2.3. Green/Healthy Environment for Green Accommodation

Nature-based solutions have various results that are beneficial to the health of individuals and society as a whole. These can include reducing stress, enhancing physical exercise, reducing health inequality, improving mood/emotion, increasing happiness, improving mental health, improving air quality, reducing noise, and improving water quality [54–56]. Green spaces or interiors in buildings (e.g., natural lighting through glass windows, indoor green walls, indoor green spaces, and green decorations) and green outdoor natural environments (e.g., mountains, rivers, good air quality, and forests) are important for sustainability.

2.3.1. Green Indoor Environment

Over the past decade, design-based research has proven its potential in the sustainable tourism industry [57,58]. This method is suitable for technology-enhanced learning environment research and design [57]. As more and more travelers gravitate toward environmentally responsible products, efforts to “green” operations (e.g., cycleway in sustainable tourism) have become increasingly important [59]. The design environmental value has long been regarded as an important part of tourist behavior and sustainable tourism. The importance of conceptual design relative to basic design or detailed design has been widely recognized, because it plays an important role in determining the basic characteristics and development costs of products [60].

2.3.2. Green Outdoor Environment

The health-related outdoor environment was described in previous papers. The post-modern Western society of the early 21st century witnessed the revival and remodeling of the sustainable tourism industry based on new ideologies, concepts, spaces, and services; it was an affirmation of a new low-carbon approach [61]. Given its increasingly important role in today’s society, further research is required, especially in terms of needs, motivations, and images [62].

2.3.3. Green Service Quality

The concept of the green physical environment in tourism accommodation includes all aspects of the interaction between the guests and the internal physical environment of the accommodation, which is particularly important because it may be a factor in service quality, product performance, and quality [63,64]. Similarly, the successful implementation of green service quality in accommodation management is also crucial because it can improve the mental health and well-being of travelers and employees [65,66]. Specifically, the experience can be mainly defined as the perceived travel quality centered on the similarity between expected performance and actual performance. Once tourists decide on or arrive at their travel destination, travel motivation may affect their evaluation of travel quality. For example, Honma and Hu [67] analyzed Japanese hotel efficiency and found that a greater distance from an international airport has negative effects. Kang et al. [68] studied hotel and ryokan guests in Japan and found positive relationships between service quality and customer satisfaction.

2.4. Evaluation Study of Hotels

Previously, some experts have carried out research on many aspects of the evaluation of hotels [32,35,36]. Based on probability distribution and earth mover’s distance, Xia et al. [69] studied a novel technique for automatically evaluating the competitiveness of hotel brands. Deng et al. [70] evaluated the efficiency of hotels by the superefficient slacks-based measure model in China. Ullah et al. [71] used some selected factors (specifically hotel rating, rental price, location, and quality of services) to study an evaluation model with online hotel booking for customer satisfaction. Some previous studies analyzed the effect of service quality on customer behavioral intentions and customer satisfaction at

hotels and ryokans [4,14,37]. However, overall, there have been few evaluation studies on ryokans.

3. Materials and Methods

3.1. Ryokans in Japan

Japanese tourism accommodation is divided into two major categories (with or without “hotel” in the name) and six subcategories (Figure 2) (without “hotel” in the name: guesthouse, minshuku, ryokan; with “hotel”: resort hotel (リゾートホテル), city hotel (シティホテル), business hotel (ビジネスホテル). Figure 17 shows the occupancy rate of different accommodation styles from January 2011 (the Great East Japan Earthquake and the Fukushima nuclear leak health crisis occurred in March 2011) to May 2020. There were some different definitions of ryokans (there is currently no precise definition) in previous studies [4,37–39]. A guesthouse is an inexpensive type of accommodation for those who are staying in Japan for one month or longer, and who want to avoid the hassle and the expense of renting and furnishing a conventional apartment. Ryokans and minshuku are part of a range of accommodation options for travelers in Japan. Far from business hotels or Western hotels, ryokans and minshuku (including B&B) are a uniquely Japanese experience. Ryokans (旅館, literally “travel buildings”) are traditional Japanese inns. There are about 60,000 across the Japanese island chain. Minshuku are the equivalent of guesthouses or B&Bs, and there are about 20,000 in Japan. They are usually owned by farmers in the countryside or mountains or are fishermen’s houses by the sea sometimes in very remote places, but mostly near hot springs. Therefore, guesthouses, minshuku, and ryokans are all called “ryokans” in the current paper (Figure 2). All the data sources were from the Institute for Building Environment and Energy Conservation (IBEC [72]) and the Japan Tourism Agency (JTA [73]). The data were analyzed and studied by the current paper.

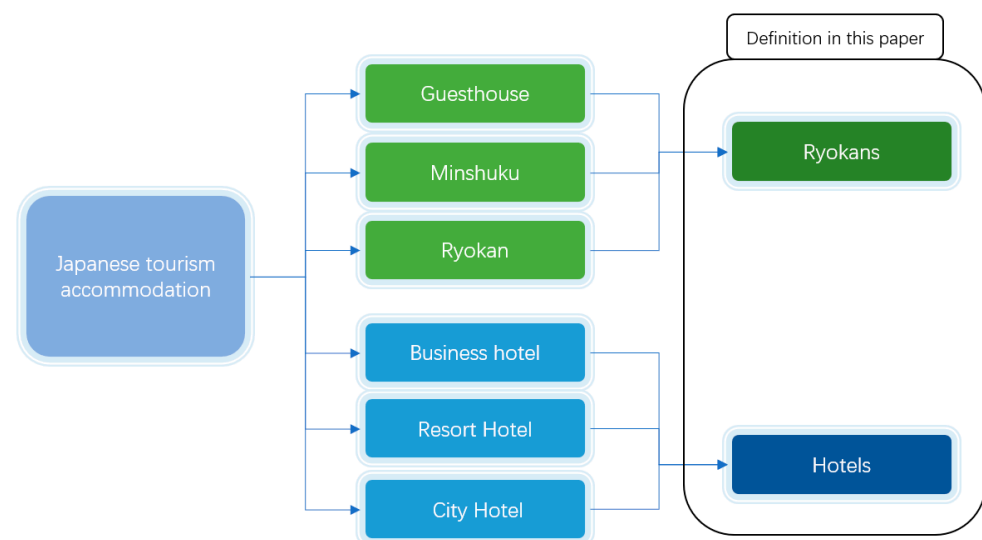


Figure 2. Types of Japanese tourism accommodation and definitions in this paper.

3.2. Descriptive Statistics

Descriptive statistics can be used for data analysis in a visual for easy understanding [74]. Hwang et al. [75] used descriptive statistics to study elderly tourism wellbeing perceptions and outcomes. Some scholars have studied the relationship between tourism and sustainability using descriptive statistics [76,77]. Others have studied the relationship between hotels and customer satisfaction using descriptive statistics [78–80].

3.3. CASBEE Analysis

The comprehensive assessment system for built environment efficiency (CASBEE) is an evaluation model for built environments. CASBEE was established in the Japan

Sustainable Building Consortium (JSBC) in 2001. It has been designed to both enhance the quality of people’s lives and to reduce the lifecycle resources of everything from a single home to a whole city. Consequently, more and more CASBEE schemes are now being deployed all over Japan. After 20 years of development, there are eight different tools in the CASBEE system (Figure 3). Compared with the evaluation systems of other countries, CASBEE has the most application scenarios. It has tools used to evaluate buildings, cities, urban areas, houses, market promotions, and community health. However, CASBEE does not have a dedicated and independent evaluation system for hotels (especially ryokans).

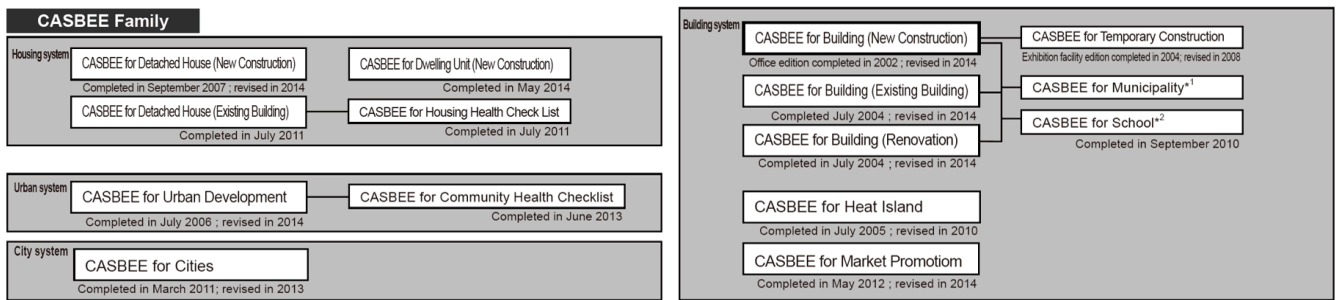


Figure 3. Framework of the CASBEE family (Municipality) [72].

The promotion of sustainability is one of the great challenges facing humankind. Since the building industry started to move toward the promotion of sustainable building in the latter half of the 1980s, various techniques to evaluate the environmental performance of buildings have been developed. In previous papers, some researchers have compared the main evaluation tools with the Building Research Establishment Environmental Assessment Method (BREEAM), Leadership in Energy and Environment Design (LEED), Green Building Tool (GB Tool), and CASBEE [81] (Figure 4). CASBEE has more advantages in evaluating indoor and outdoor built environments and quality of service [82,83].



Figure 4. Weights assigned to assessment items per tool (pie chart) [72]. Note: BREEAM = Building Research Establishment Environmental Assessment Method.

Built environment efficiency (BEE) represents the ratio of the environmental quality of building (Q) and the environmental load of building (L). BEE can be divided into five categories according to the score. Kagoshima (Kagoshima City was the first city to become Japan's "Future Environmental City" and "SDGs (Sustainable Development Goals) Future City" at the same time) has launched an evaluation formula called "hospitality & ecology" suitable for the hospitality industry on this basis (Figure 5). Therefore, the goal of this paper is to consider how to increase the Q value (because the L value is mainly energy consumption and carbon emissions, etc.; it is not in the scope of this article). The improvement of the Q value is mainly based on the investigation and research of customer satisfaction.

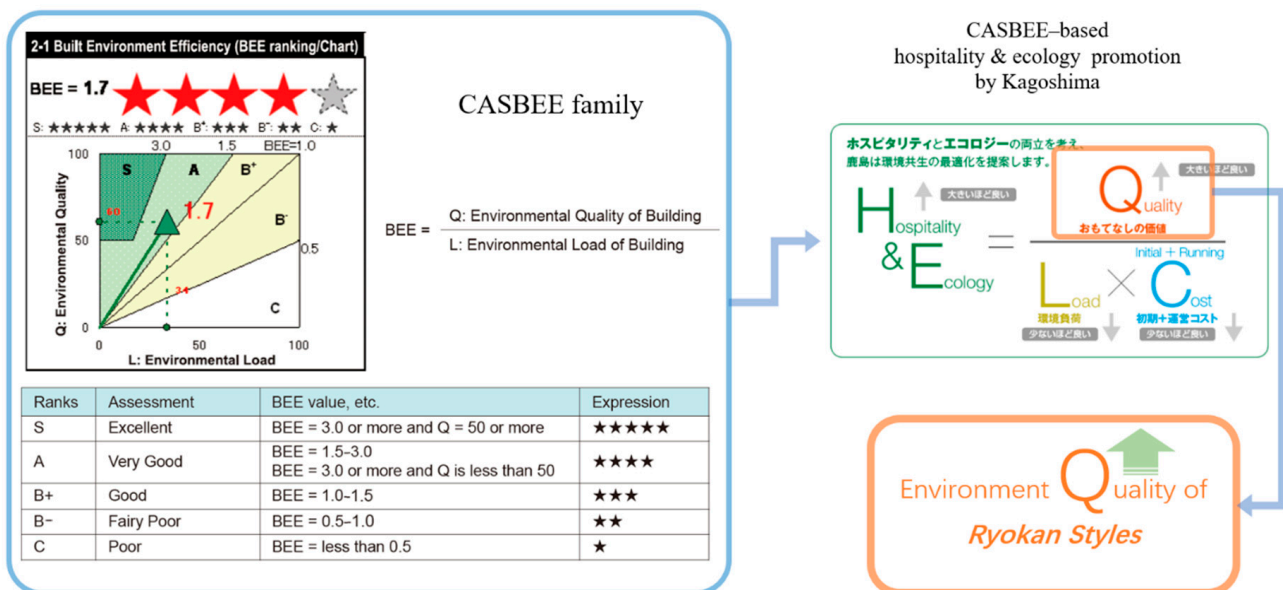


Figure 5. Built environment efficiency (BEE) and the CASBEE-based "hospitality & ecology" formula [72].

3.4. Delphi Method and Questionnaire Items

The Delphi method is considered a collective technique whose purpose is to obtain the most reliable consensus of the expert group through a series of intensive questionnaires with controlled feedback. [84]. The subsequent application of this technology removed the mandatory consensus-seeking restrictions, so today it can be defined as a social research technology whose purpose is to use a group of experts to obtain reliable collective opinions. Hsiao et al. [5] studied and established an environmental management system for green hotel evaluation by the Delphi method. It is a way to establish communication between a group of people who can provide valuable advice to solve complex problems [85]. It shows the design logic of the Delphi method and selection process of 30 research variable items. CASBEE-based measurement items for the questionnaire survey of green ryokan customer satisfaction were identified (Figure 6, Table 1).

Table 1. CASBEE-based measurement items for green ryokans.

NO.	Items	Sources from CASBEE Family			
Q1	Indoor environment (comfortable, healthy, and safe)	BD	MP	H	
	Sound environment	BD			
1	Sound insulation	BD			
2	Sound absorption	BD			
	Thermal comfort	BD			
3	Room temperature control (preventing summer heat, preventing winter cold)	BD	MP	H	
4	Humidity control	BD			
5	Type of air conditioning system (fresh air)	BD			
	Lighting and illumination	BD			
6	Use of daylight	BD	MP		
7	Anti-glare measures	BD			
8	Comfortable illuminance level	BD			
	Air quality	BD			
9	Ventilation/natural ventilation performance	BD	MP		
10	Operation (materials to maintain safe interior indoor air quality (IAQ))	BD			
	View				
11	Good view/visual environment		MP		
Q2	Outdoor environment (on-site) (biodiversity/site use) (richer townscape and ecosystem)	BD	MP	H	CH
	Preservation and creation of biotope	BD			
12	Good biological environment	BD		H	
	Townscape and landscape	BD			
13	Consideration of the townscape and landscape	BD		H	CH
	Local characteristics and outdoor amenity	BD			
14	Attention to local character and improvement of comfort	BD			
15	Utilizing regional resources and inheriting the regional housing culture			H	
	Health, safety, and security				
16	Safety and security of the region			H	
17	Comfortable sound environment				CH
18	Thermal comfort/improvement of the thermal environment on site	BD			CH
19	Good nature air quality				CH
Q3	Quality of service (materials/safety)	BD	MP	H	CH
	Service ability	BD			
20	Functionality and usability (smart device)	BD			
21	Amenity (public transportation accessibility)	BD	MP		CH
22	Good maintenance	BD			
	Durability and reliability	BD			
23	Earthquake resistance/high earthquake resistance, seismic isolation, etc.	BD	MP		
24	Occupant comfort for space within virtual boundaries	BD			
25	Reliability	BD			
	Flexibility and adaptability	BD			
26	Flexible spatial margin	BD			
	Health, safety, and security				
27	Countermeasures against chemical contaminants/natural energy		MP	H	CH
28	Proper planning for ventilation			H	CH
29	Precautions against crime			H	CH
30	Natural disaster risk management		MP		

Note: BD = CASBEE for Building, MP = CASBEE for Market Promotion, H = CASBEE for House, CH = CASBEE for Community Health.

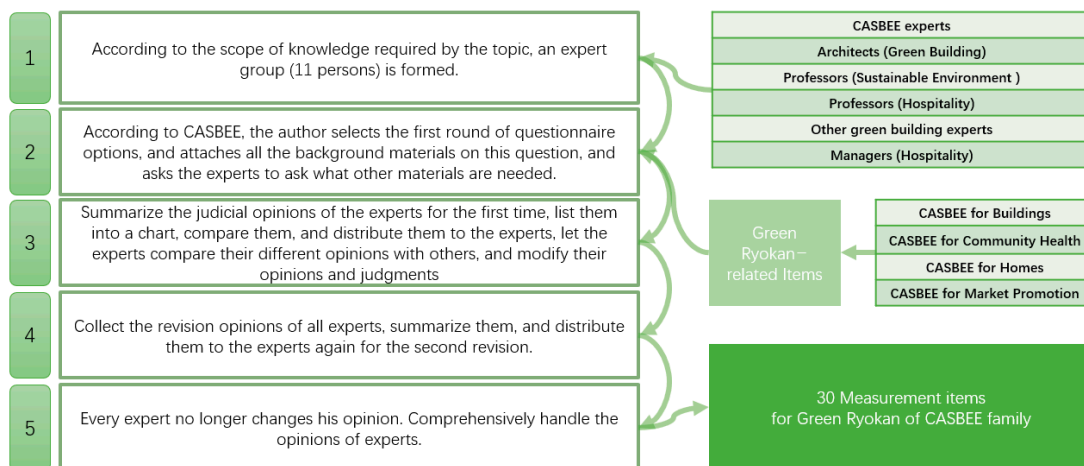


Figure 6. The design logic of the Delphi method and selection process of 30 research variable items.

3.5. IPA and Its Threshold Selection

Importance–performance analysis (IPA) is a research technique designed to check and recommend management strategies [86]. The key of IPA is to diagnose the performance/importance of different service attributes and provide practical suggestions for improving management [87]. Abalo et al. [88] studied the measures of tourist-perceived performance and importance in two-dimensional graphs. Each IPA chart quadrant represented different strategies for helping tourism managers promote customer satisfaction [89]. One of the issues of IPA is choosing the best site to divide the quadrant thresholds [90]. First, the data-centric (DC) method uses the actual data average level as the critical point [91]. Second, the scale-centric (SC) method also can provide a simpler description [92]. Others have used diagonal lines (DLs) or isolines (IRLs) [92]. Compared with the previous method, the IRL method is a more suitable method for measuring the difference between the pre-performance and post-importance (satisfaction prediction) levels [93]. According to the IPA in the tourism review by Lai and Hitchcock [94], most researchers (about 80%) used the DC method and the average of actual importance and performance level in hotel tourism research. Therefore, the DC method is used for specifying thresholds (satisfaction of exhibition visitors before/after COVID-19) (Figure 7).

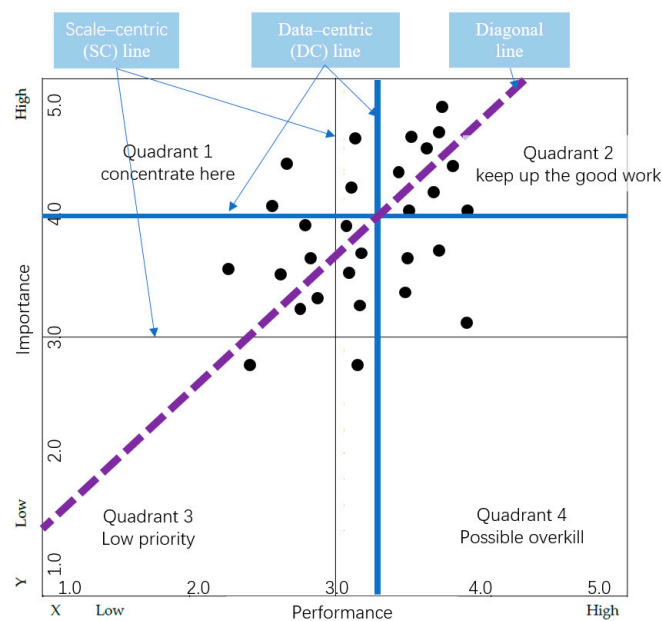


Figure 7. The line of different thresholds within the IPA plot.

4. Results (Study) 1: Tourism Accommodation Survey with Descriptive Statistics

4.1. Japan Tourism Accommodation Analysis before/after COVID-19

4.1.1. Number and Percentage of Tourists

This part selected the number of foreign tourists and Japanese tourists traveling abroad from 1964 to 2019 in Japan (Figure 8). It shows three obvious travel crises after 2000, which led to different decreases in the number of tourists. The number of foreign tourists traveling to Japan has risen sharply since the health crisis of the Fukushima nuclear leak in 2011. This shows that Japan's national policy of "Tourism Nation Promotion Basic Law" from 2003 has achieved obvious results after two crises in eight years.

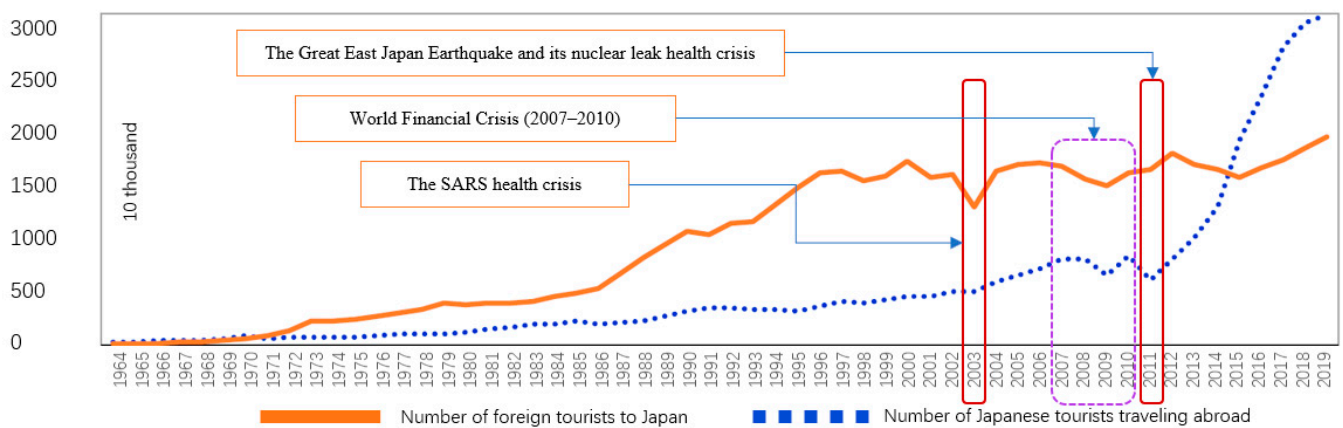


Figure 8. The numbers of foreign tourists coming to Japan and Japanese tourists traveling abroad [73].

Tourism accommodation is one of the most important sectors in Japan's tourism industry. According to the statistics of annual tourism consumption of foreign tourists in the last decade (2010–2019) (Figure 9), tourism accommodation costs ranked second (shopping consumption was first), accounting for more than one-fifth of the total consumption. The consumption of tourism accommodation reached 6.8 billion US dollars in 2019. Therefore, tourist accommodation should receive more attention. Figure 10 shows the annual tourism consumption of foreign tourists. Figure 11 shows the countries and regions with a large percentage of foreign accommodation customers from 2010–2019 in Japan. The first was mainland China. China, Taiwan, and South Korea are all countries and regions adjacent to Japan, and their sum exceeded half of the total. This shows that tourists from neighboring countries and regions (especially mainland China) are very important to tourist accommodation in Japan. We need to fully consider the needs of tourists from neighboring countries.

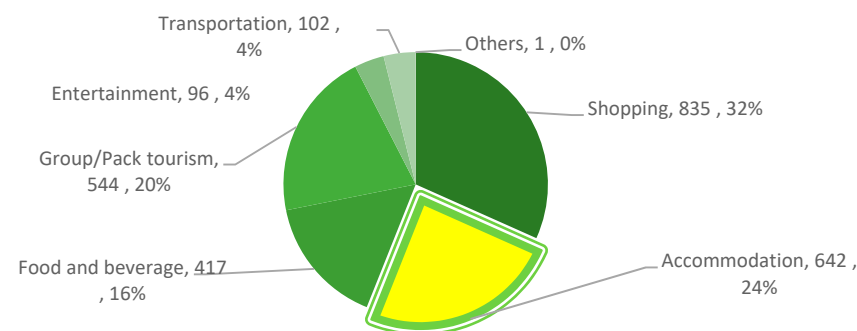


Figure 9. Annual tourism consumption types of foreign tourists (2010–2019) (billions) (selected from the Japan Tourism Agency).

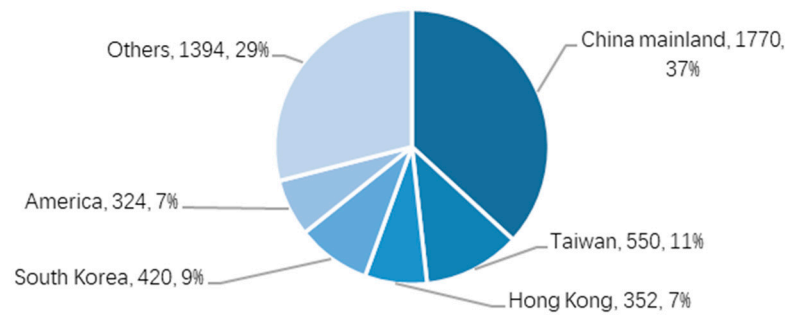


Figure 10. Annual tourism consumption of foreign tourists (2019) (billion yen) (selected from the Japan Tourism Agency).

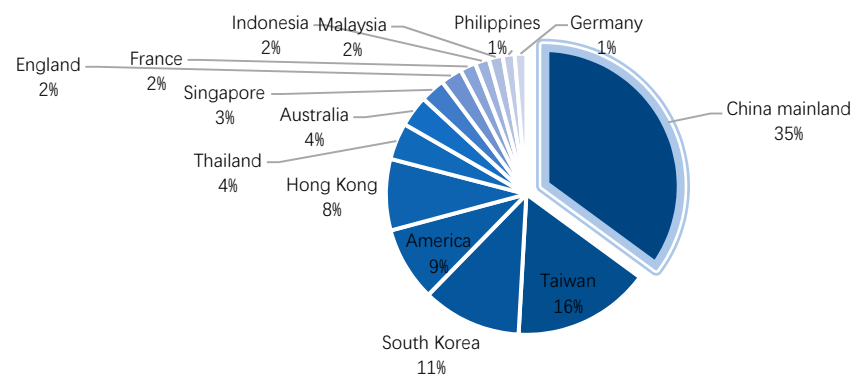


Figure 11. The main countries and regions with a large percentage of foreign accommodation customers from 2010–2019 in Japan.

Figure 12 shows the numbers of foreign and Japanese customers using tourism accommodation. Moreover, it compares the percentages of foreign tourists to Japan’s domestic tourists in May 2018, May 2019, and May 2020 (after the COVID-19 outbreak), which were 21.3%, 23.3%, and 1.3%, respectively. It shows that Japanese customers were more common than foreign customers. After the COVID-19 outbreak in Japan from February 2020, the number of foreign tourists plummeted. The ratio of local customers to foreign customers reached 77:1. This shows that, in Japan, as in many other destinations around the world, domestic demand has sustained the tourism accommodation sector in these months of the COVID-19 pandemic.

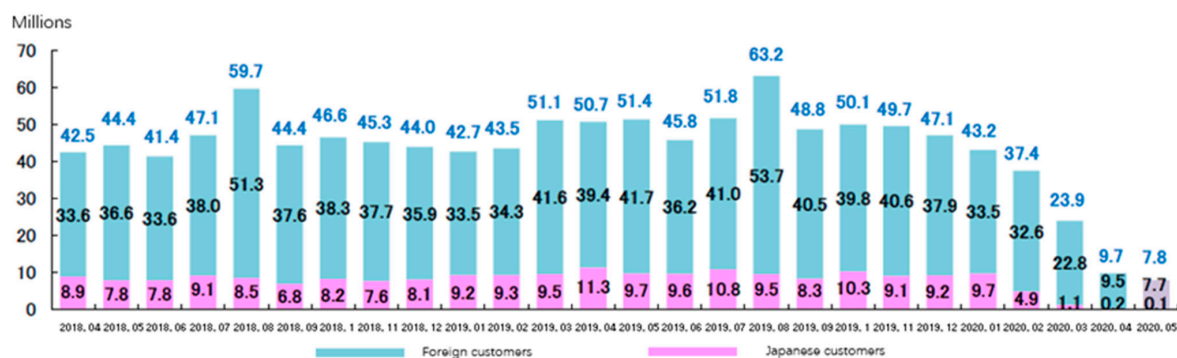


Figure 12. The numbers of foreign and Japanese customers of tourism accommodation [73].

On the other hand, Figure 13 shows the growth rate of foreign and Japanese customers (compared with the same month in 2019). It also shows that the negative impact of the COVID-19 outbreak (in the early stages) on foreign customers was greater than on local

consumers. However, as the local outbreak began, the situation deteriorated sharply. At the end of May 2020, foreign customers decreased by 98.6% compared to the same period, while local customers decreased by 81.6%, and the total decreased by 84.8% [73]. Before COVID-19, the growth rate of foreign customers in tourism accommodation statistics was much higher than that of Japanese tourists. The highest growth rate was 35.6% in January 2019 and the lowest was 12.2%. The highest growth rate of Japanese tourists was only 17.3%, and the lowest was -0.9%. This also shows that the national strategy of “tourism-building” established by the Japanese government in 2003 is correct. However, according to the above analysis, the impact of COVID-19 on the number of foreign tourists is much more serious than the impact on Japanese tourists. Therefore, there is an urgent need to conduct research on the Japanese green accommodation industry to determine how to improve customer satisfaction with Japanese tourist accommodation after COVID-19, and then to restart and restore the accommodation industry in time to welcome the 2021 Japan Olympic Games and promote longer-term development in the future.

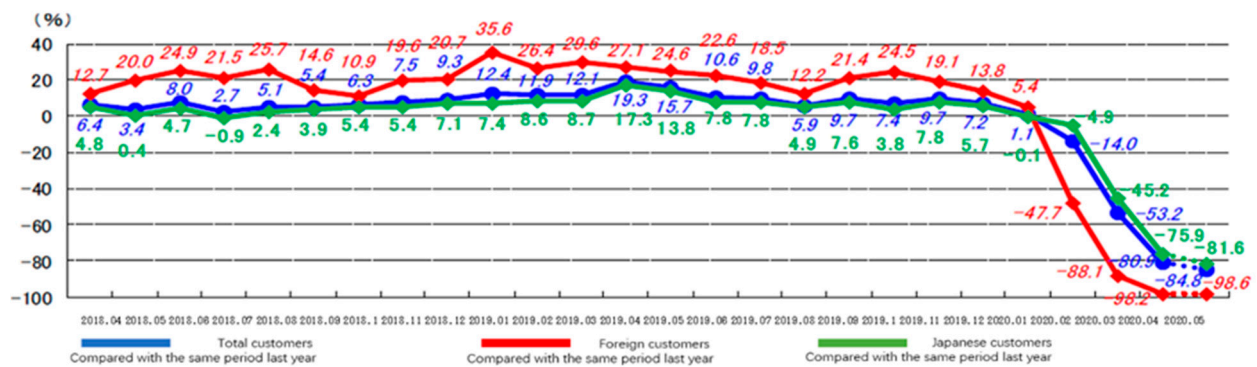


Figure 13. Growth rate of foreign and Japanese customers of tourism accommodation [73].

Figure 14 shows the number of visits by tourists and the percentage of tourists in different locations. Among the areas that tourists do not tend to visit repeatedly are the traditional three major cities (urban tourism centers) of Osaka, Nagoya, and Tokyo. Among the areas repeatedly visited by tourists (more than two times), the proportion has declined. The re-visiting ratio of Hokkaido (a tourist destination with snow and a natural landscape) and Fukuoka (a hot spring resort ryokan destination) has increased significantly. Figure 15 shows the accommodation occupancy rates. Figure 16 shows the rank by the difference in occupancy rate comparing 2019/04 with 2020/04. Basic analysis of this shows that the higher the usual occupancy rate, the faster the occupancy rate will drop after a health crisis. It shows that nature-based destinations increase customer satisfaction and that urban tourism has no obvious advantage in terms of garnering repeat visits by tourists in Japan.



Figure 14. Number of visits by tourists to tourist accommodation, and the percentage of tourists in different locations (2010–2019).

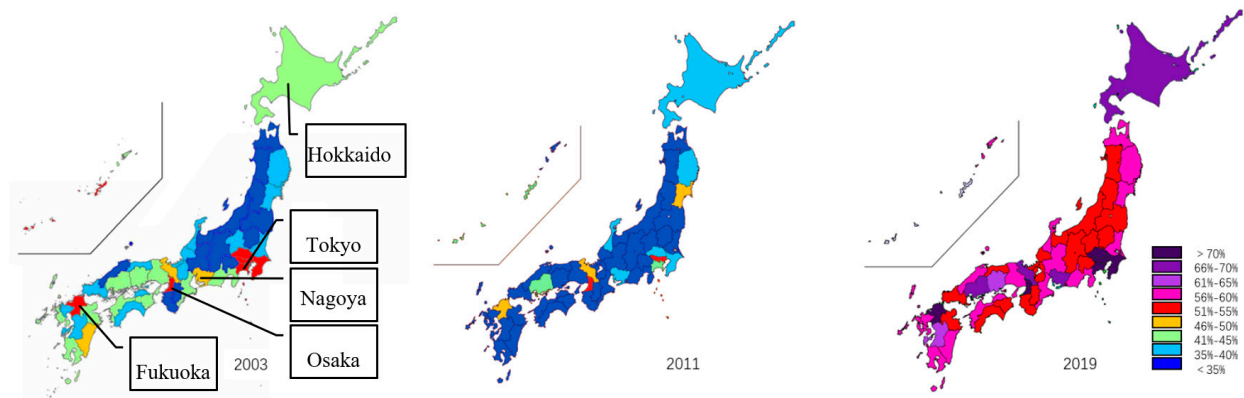


Figure 15. Occupancy rate of tourism accommodation in the cities in Japan in 2003/2011/2019: SARS (2003) and the Great East Japan Earthquake and Fukushima nuclear leak health crisis (2011).

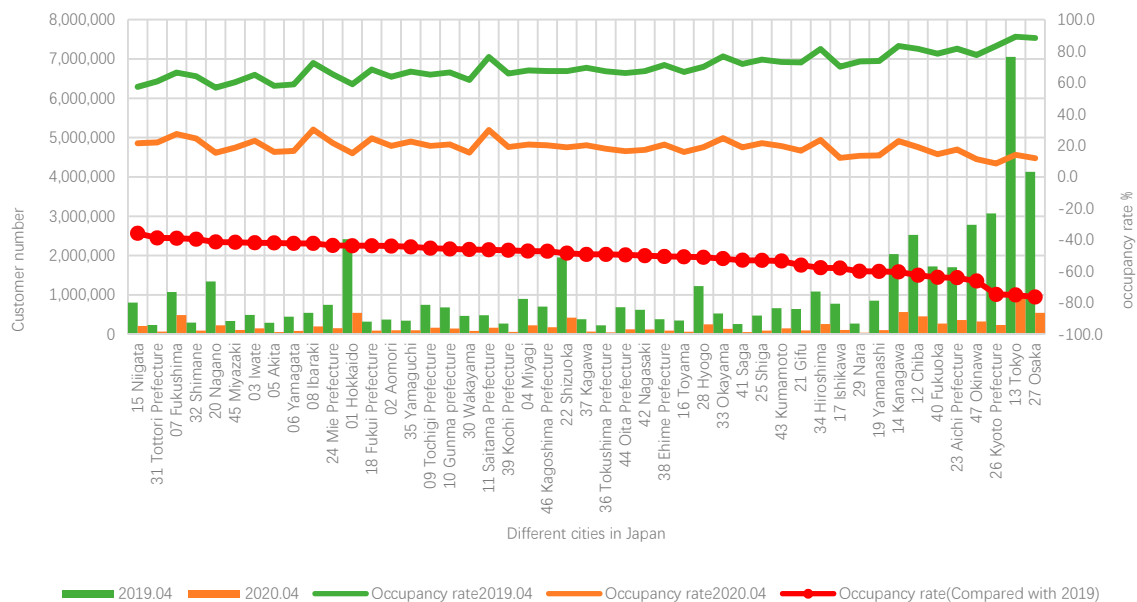


Figure 16. Rank of the difference in occupancy rate comparing 2019/04 with 2020/04 of tourism accommodation.

4.1.2. Occupancy Rate

In terms of regional accommodation occupancy rates in Japan, this paper compared the data with 2003 (the SARS health crisis), 2011 (the Great East Japan Earthquake and its nuclear radiation crisis), and 2019 (the year before COVID-19) (Figure 15). It shows that in the year of the SARS outbreak, although the number of foreign tourists decreased (mainly Chinese tourists), the overall impact was not significant (because there was no SARS outbreak in Japan). However, the situation in 2011 was much worse than in 2003 (although there was no global health crisis). Due to the Great East Japan Earthquake and the health crisis caused by the nuclear leak, the rate of accommodation in 2011 dropped sharply across the country (except for the central areas of Tokyo and Osaka). Basic analysis of this shows that the local crisis (especially the health crisis) had a much greater negative impact on tourism accommodation than crises in neighboring countries (because foreign tourists and Japanese tourists were both unwilling to travel).

4.2. Finding 1: Advantages of Ryokans after COVID-19 in Japan

As can be seen from the following analysis chart (Figures 17 and 18), the occupancy rate of ryokans is usually lower than that of hotels. However, after the outbreak of COVID-19, the occupancy rate of ryokans dropped much less than that of hotels. This situation also occurred in the health crisis of the nuclear leak in March 2011 (Figure 17). This shows that ryokans have certain advantages in times of crisis.

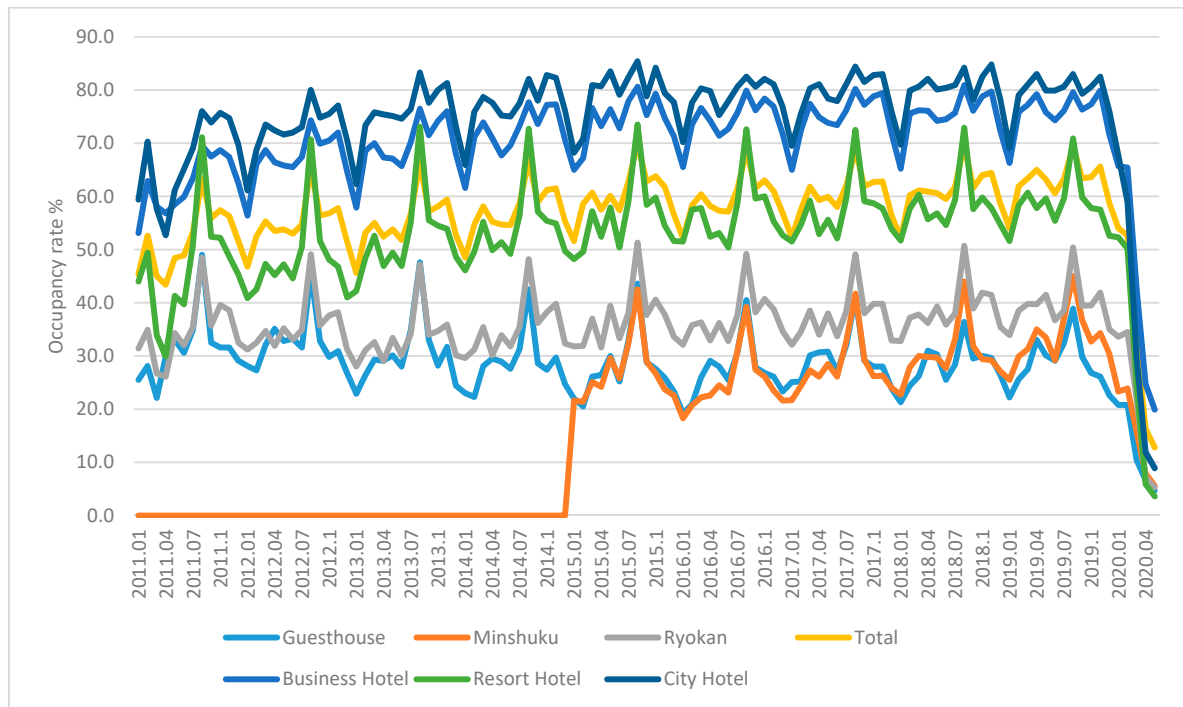


Figure 17. Occupancy rate of different accommodation styles (2011/01–2020/04).

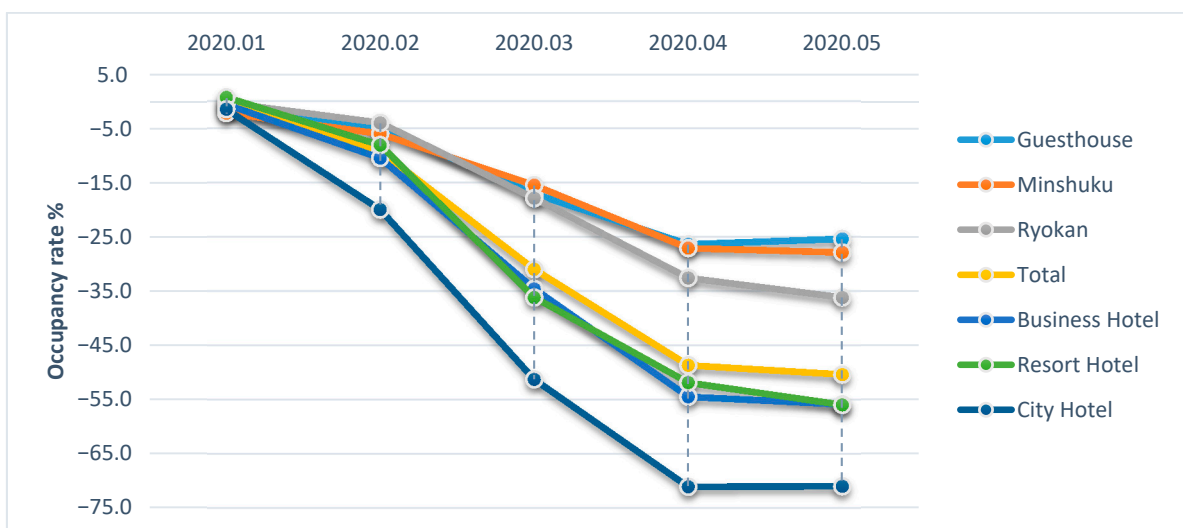


Figure 18. Occupancy rate under COVID-19 (compared the same months in 2019) of tourism accommodation.

In the tourism industry, apart from hotels and guesthouses, the most common form of accommodation is the bed and breakfast (B&B) [95]. This means that visitors or guests pay to stay in a private residence, interacting with the landlord family [96]. This small-scale operation method attracts tourists differently from standard hotels [97]. Hara [98]

reviewed Japanese tourism and hospitality management, considering both challenges and solutions. Unlike the concept of “sofa guests” in Europe and America, Japanese ryokans had a very long history. They first appeared in the 15th century. They provide convenience for people traveling between cities [99], similarly to ancient Chinese inns. Subsequently, as the domestic tourism industry developed, and more and more Japanese people traveled in families, the rural areas, hot springs, and ski resorts were not suitable for building large-scale hotels, so the locals expanded and transformed their residences for profit [100].

Among these two types, hotels (resort hotels, city hotels, and business hotels) have relatively standardized industry standards. These have also received more research attention all over the world. However, guesthouses, minshuku, and ryokans are becoming more and more important to Japan’s tourist accommodation. Especially after 2003, the Ryokan Business Law was deregulated nationwide. The operation of ryokans is strongly encouraged and supported by the Japanese government. Ryokans could play an important role in the restart and recovery of Japanese tourism accommodation.

5. Results (Study) 2: CASBEE–IPA

For this, we used the Delphi method to select and confirm items related to the “green ryokan style” from the CASBEE family. Then, this study used the confirmed items to conduct a questionnaire survey.

5.1. Data Collection

Based on the previous survey/analysis of Japanese tourism and tourist accommodation among foreign tourists, the influence of Chinese tourists and the pursuit of Japanese ryokans are increasing year by year (Chinese tourists’ annual consumption accounts for half of all foreign tourists’ consumption). Therefore, this paper selected Chinese tourists as the survey object. This study used Questionnaire Star (Changsha Ranxing Information Technology Co., Ltd., Changsha, China) to make questionnaires and send them through social software such as WeChat (Tencent, Shenzhen, China). Each questionnaire had a 5 RMB red envelope as a reward for the respondent. Finally, the data on the webpage of Questionnaire Star were downloaded and summarized. The data were selected from 357 travelers who had experienced the ryokans in Japan before COVID-19. A Likert scale was used to measure the tourists’ expectations before checking in.

5.2. Finding 2: Improvement Strategies after COVID-19 from IPA

SPSS 26 statistical software (IBM, New York, USA) was used for questionnaire analysis. The questionnaire reliability calculation was based on Cronbach’s alpha coefficient. An alpha greater than 0.7 means “high reliability”, and greater than 0.5 means “reliable”. The questionnaire had an alpha of 0.974, indicating relatively high and acceptable reliability [75]. The questionnaire also showed sufficient content validity, standard-related validity, and structural validity (Tables 2 and 3).

Table 2. Validity statistics.

		Number	%
Cases	Valid	357	100
	Excluded	0	0
	Total	357	100

Table 3. Reliability statistics.

Cronbach’s Alpha	Number of Items
0.974	30 Expect-Importance 30 Past-Performance

According to the IPA framework, the average responses to the importance and performance of 30 attributes were analyzed, as shown in Table 5. Most of the importance and performance means were found to be significantly different (Sig. 2-tailed) at the <0.01 level (No. 15, 24 < 0.05). Variables in each category are ranked in order by importance.

The analysis results are shown in Table 4 and Figure 19. First, these items are in the high priority area (Score 4): No. 6, 9, 10, 11 (indoor environment); 12, 18, 19 (outdoor environment); and 23, 30 (quality of service). For example, these items need to be given high priority attention after COVID-19: (No. 6) use of daylight, (No. 6) ventilation/natural ventilation performance, (No. 6) operation (materials to maintain safe interior indoor air quality (IAQ)), and (No. 6) good view/visual environment. Second, these items are in the priority area (Score 3): No. 2, 3, 7 (indoor environment) and 20, 21, 22, 28 (quality of service). Third, these items are in the medium priority area (Score 2): No. 1, 4, 5, 8 (indoor environment); 13, 16, 17 (outdoor environment); and 26 (quality of service). Fourth, these items are in the low priority area (Score 1): No. 15 (outdoor environment) and 24, 25, 27, 29 (quality of service).

Table 4. Rank, means of importance, and performance and paired sample T test.

No.	Paired Differences (I–P)					<i>t</i>	Sig. (2-tailed)	I	<i>p</i>	Correlation	
	Mean	Std. Deviation	Std. Error Mean	95% ^a							
				Lower	Upper						
1	1.120	1.523	0.080	0.962	1.278	13.918	0.000	4.770	3.650	0.632	
Q1	2	0.964	1.671	0.088	0.790	1.137	10.914	0.000	6.090	5.120	0.811
	3	0.844	1.625	0.086	0.675	1.013	9.819	0.000	6.410	5.570	0.791
	4	0.729	1.262	0.067	0.598	0.860	10.929	0.000	4.830	4.100	0.718
	5	2.693	1.453	0.077	2.542	2.844	35.053	0.000	5.470	2.780	0.632
	6	2.478	2.523	0.133	2.215	2.740	18.577	0.000	6.220	3.740	0.441
	7	0.953	1.749	0.092	0.771	1.134	10.304	0.000	6.380	5.430	0.764
	8	1.500	2.543	0.134	1.236	1.764	11.159	0.000	4.670	3.170	0.411
	9	3.455	1.761	0.093	3.272	3.638	37.130	0.000	6.240	2.780	0.418
	10	2.961	1.474	0.078	2.808	3.114	38.012	0.000	5.780	2.820	0.607
	11	2.179	0.858	0.045	2.090	2.268	48.070	0.000	5.970	3.790	0.856
Q2	12	1.564	1.917	0.101	1.365	1.764	15.439	0.000	5.660	4.100	0.755
	13	1.598	1.372	0.073	1.455	1.740	22.033	0.000	4.420	2.830	0.820
	14	0.687	1.538	0.081	0.527	0.847	8.451	0.000	5.910	5.220	0.807
	15	−0.260	2.278	0.120	−0.497	−0.023	−2.158	0.032	4.650	4.910	0.859
	16	0.478	2.480	0.131	0.220	0.735	3.645	0.000	4.620	4.140	0.745
	17	0.939	1.244	0.066	0.809	1.068	14.273	0.000	4.320	3.380	0.757
	18	1.422	1.780	0.094	1.237	1.607	15.112	0.000	5.490	4.070	0.817
	19	2.483	1.152	0.061	2.364	2.603	40.802	0.000	6.460	3.970	0.677
Q3	20	1.176	1.721	0.091	0.997	1.355	12.926	0.000	6.000	4.830	0.835
	21	1.578	2.022	0.107	1.368	1.788	14.770	0.000	5.990	4.410	0.704
	22	1.142	1.754	0.093	0.960	1.325	12.327	0.000	5.850	4.710	0.807
	23	1.930	2.277	0.120	1.693	2.167	16.038	0.000	5.810	3.880	0.607
	24	−0.327	2.412	0.127	−0.578	−0.076	−2.564	0.011	4.850	5.180	0.573
	25	−0.592	2.211	0.117	−0.822	−0.362	−5.069	0.000	4.830	5.420	0.690
	26	1.662	1.888	0.100	1.466	1.858	16.659	0.000	5.390	3.730	0.780
	27	−0.696	2.024	0.107	−0.906	−0.485	−6.503	0.000	4.540	5.230	0.745
	28	0.939	1.683	0.089	0.764	1.113	10.554	0.000	6.200	5.270	0.806
	29	−0.709	2.196	0.116	−0.938	−0.481	−6.113	0.000	4.830	5.540	0.670
	30	2.142	2.276	0.120	1.906	2.379	17.809	0.000	5.990	3.850	0.600

Note: ^a Confidence interval of the difference. All factors loadings are significant at $p < 0.01$ (No. 15/24 < 0.05).

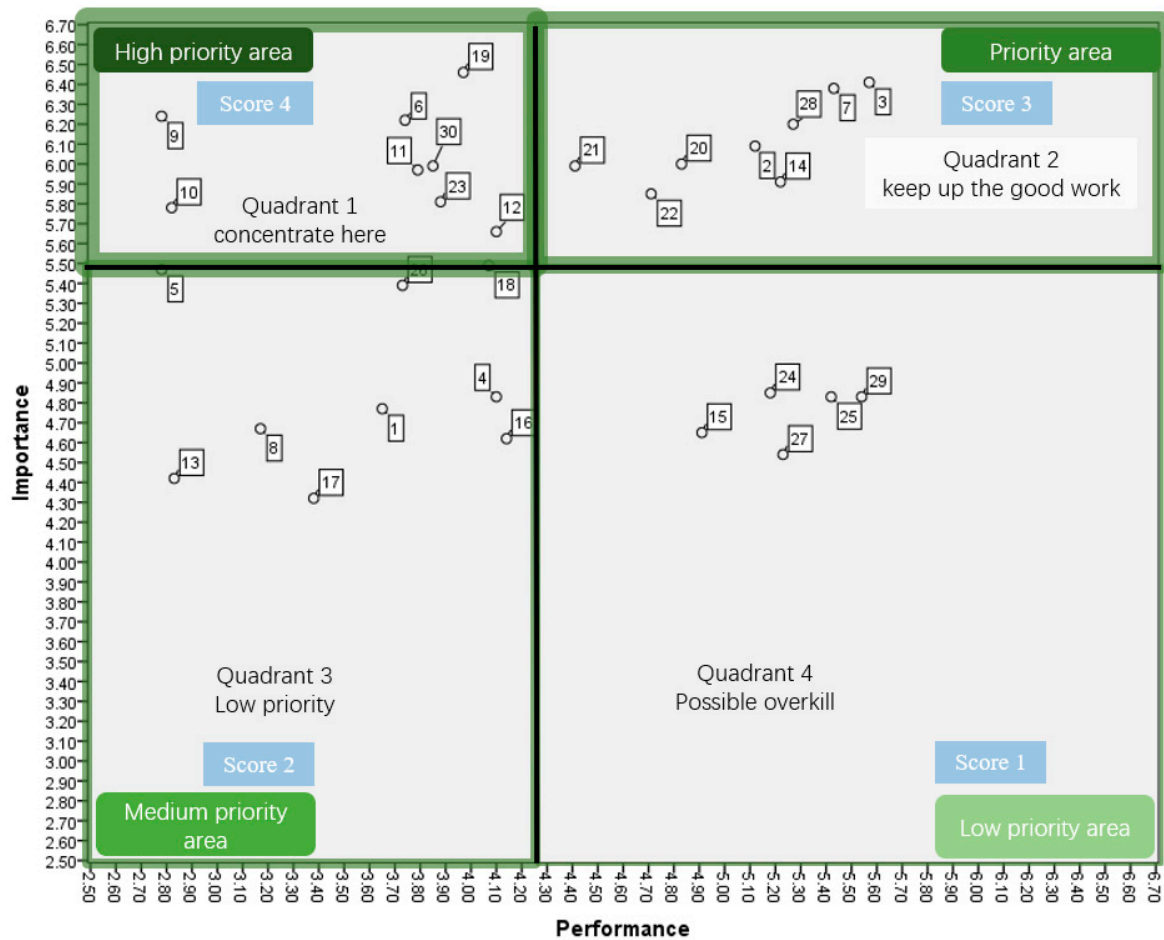


Figure 19. The importance–performance analysis.

6. Results (Study) 3: A Dynamic Evaluation Model of Green Ryokans

6.1. Weights Analysis

Based on the weighted average of the score of the IPA, the new weights of items were identified, and then the “Q value” items and weights of the new “evaluation model of green ryokans” were obtained (Table 5, Figure 20). Because the L value is mainly energy consumption and carbon emissions, it is not in the scope of this article (Figure 20). For example, Q3-23 and Q3-30 have the biggest weights among all the items. This shows that in the subsequent evaluation and scoring, these two items need to be paid more attention to. On the other hand, Q2-12 and Q2-15 have the smallest weights among all the items. This shows that these two items can be paid less attention.

Table 5. Items and weights.

Items		No.	Quadrant	Score ^b	Weights ^c
Q1 25.00%	Q1-1	1	Quadrant2	2	6.06%
	Q1-2	2	Quadrant3	3	9.09%
	Q1-3	3	Quadrant3	3	9.09%
	Q1-4	4	Quadrant2	2	6.06%
	Q1-5	5	Quadrant2	2	6.06%
	Q1-6	6	Quadrant4	4	12.12%
	Q1-7	7	Quadrant3	3	9.09%
	Q1-8	8	Quadrant2	2	6.06%
	Q1-9	9	Quadrant4	4	12.12%
	Q1-10	10	Quadrant4	4	12.12%
	Q1-11	11	Quadrant4	4	12.12%

Table 5. Cont.

	Items	No.	Quadrant	Score ^b	Weights ^c
Q2 20.00%	Q2-12	12	Quadrant1	1	5.26%
	Q2-13	13	Quadrant2	2	10.53%
	Q2-14	14	Quadrant3	3	15.79%
	Q2-15	15	Quadrant1	1	5.26%
	Q2-16	16	Quadrant2	2	10.53%
	Q2-17	17	Quadrant2	2	10.53%
	Q2-18	18	Quadrant4	4	21.05%
	Q2-19	19	Quadrant4	4	21.05%
Q3 27.75%	Q3-20	20	Quadrant3	3	11.54%
	Q3-21	21	Quadrant3	3	11.54%
	Q3-22	22	Quadrant3	3	11.54%
	Q3-23	23	Quadrant4	4	15.38%
	Q3-24	24	Quadrant1	1	3.85%
	Q3-25	25	Quadrant1	1	3.85%
	Q3-26	26	Quadrant2	2	7.69%
	Q3-27	27	Quadrant1	1	3.85%
	Q3-28	28	Quadrant3	3	11.54%
	Q3-29	29	Quadrant1	1	3.85%
	Q3-30	30	Quadrant4	4	15.38%

Note: ^b Based on the IPA, the total score for each parts (Q1/Q2/Q3) is 10; ^c weighted average, the total weights for each parts (Q1/Q2/Q3) is 100%.

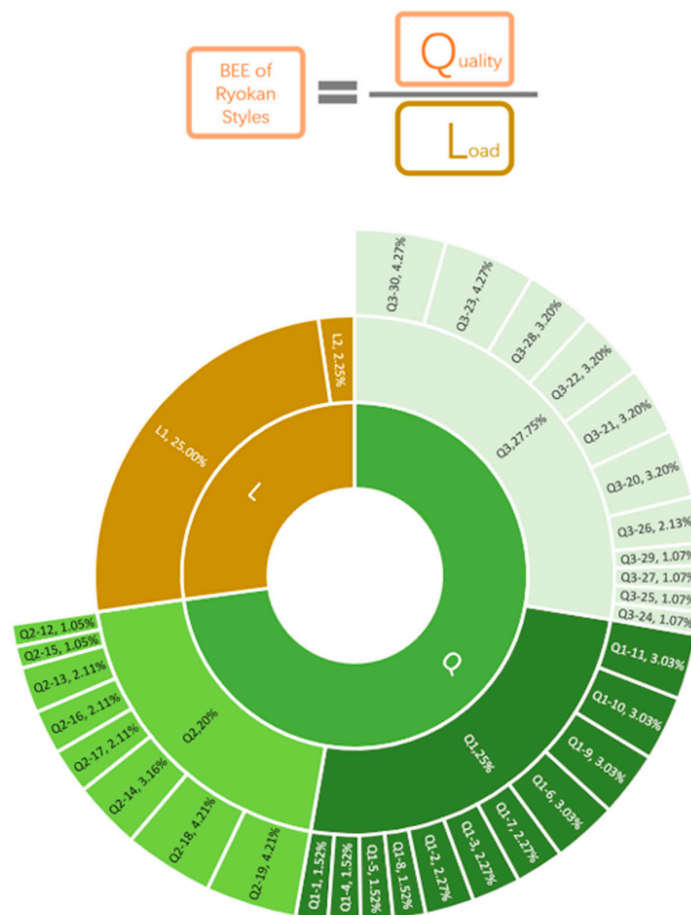


Figure 20. The evaluation model of green ryokans.

6.2. Finding 3: Improvement Strategies after COVID-19 from IPA

The weights were determined according to the IPA of customer satisfaction, which is a dynamic process. This study established a new dynamic evaluation model of ryokans: (1) items remain basically unchanged (unless other new crises or changes occur) and (2) the weight of items can change according to different regions or different customer groups (for example, if hotels specialize in attracting tourists from a certain country, then a new weight can be determined based on the IPA survey and analysis of tourists' satisfaction in this country). This is another huge advantage of the ryokan style of non-standard hotels—flexibility. This may be the biggest research discovery and contribution of this article.

7. Discussion

Crises that have occurred that affect Japan have opened a window of opportunity for the hotel industry. The current paper is also one of the first papers attempts to evaluate Ryokans through a tourism accommodation survey and customer-satisfaction-related CASBEE–IPA. This has implications for both theory and practitioners/policy makers. Three findings were obtained from this research.

First, ryokans are more flexible than hotels, have strong anti-risk capabilities, and have received more and more attention from tourists and support from the Japanese government. There were some different studies of ryokans in previous papers [37–39] but there has been a lack of study of their flexibility and anti-risk capabilities after COVID-19. It is likely to become an emerging force in the Japanese hotel industry after the epidemic.

Second, improvement strategies for customer satisfaction after COVID-19 were provided from IPA. Although some experts have carried out research on many aspects of the improvement strategies of hotels and B&Bs [22,23,78]. There were few studies about the improvement strategies of ryokans. It is significant to study how to improve the customer satisfaction for Japanese tourist accommodation for restart and recovery in the future and in preparation for the 2021 Japan Olympics.

Third, an attempt to use the dynamic evaluation model of green ryokans was discussed. It may be employed in other countries and regions experiencing the same situations. Although some experts have carried out research on many aspects of the evaluation of hotels [32,35,36,101], there have been few evaluation studies on ryokans. Moreover, most of them were focused on the static evaluation model. The current paper provided a dynamic evaluation model. It will be easier for both theory and practitioners/policy makers to improve the ryokans industry. Using this dynamic model, the practitioners/policy makers can quickly understand different satisfaction from different customer groups and make improvement measures with the linked targets. Surveys can also be conducted at different times and become a tool for continuous optimization/improvement of ryokans in Japan.

8. Conclusions

8.1. Implications for Theory

First, hotels have relatively standardized industry standards. They have also received more research attention all over the world. However, guesthouses, minshuku, and ryokans are becoming more and more important to Japan's tourist accommodation market [14]. Ryokans are more attractive to tourists and have lost less after crises than hotels. Ryokans could play an important role in the restart and recovery of Japanese tourism accommodation. Therefore, this study chose green ryokans as the object of study.

Second, strategies for promoting green ryokans at different levels are proposed in Study 2. These strategies supplement the gaps in research related to green ryokans. These strategies could help improve customer satisfaction in tourism accommodation after COVID-19 and further promote the 2021 Japan Olympic Games. Moreover, Study 3 used the CASBEE combined with the Delphi method and IPA in a novel way.

8.2. Implications for Practitioners and Policy Makers

The changes in the world have exceeded our expectations, especially after the outbreak of COVID-19. Therefore, a new dynamic green evaluation model for ryokans needed to be established. Although this process may be controversial, this study has taken the first step to try to fill the gaps in CASBEE for ryokans and change the original inherent evaluation model and evaluation system. The findings in this article will help to guide operators/practitioners in the ryokan industry to get market research support for improvement measures as soon as possible. At the same time, it also has a policy support role for the government or non-governmental policy makers in the ryokan industry. For health-related ryokans, the highest priority with regards to promotion strategies designed to elicit customer satisfaction following COVID-19 is designing a green built environment.

8.3. Limitations and Future Research Directions

Due to limited human and material resources, the sample of the research objects in this paper was limited to Chinese tourists (the largest number and top consumers of the foreign tourists visiting Japan). The current paper shows that in Japan, as in many other destinations around the world, domestic demand has sustained the tourism accommodation sector in these months of the COVID-19 pandemic. Therefore, in future, we plan to investigate the top 10 countries and regions of tourists visiting Japan and combine their satisfaction ratings with Japanese domestic tourists to compare the differences and summarize the similarities. This study hopes to develop a more comprehensive hotel dynamic evaluation model in the future.

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