The effects of traveling for business on customer satisfaction with hotel services

Tijana Radojevic [a, *], Nemanja Stanisic [b], Nenad Stanic [c], Rob Davidson [d]

[a] Faculty of Tourism and Hospitality Management, Singidunum University, Belgrade, Serbia
[b] Faculty of Business Economics, Singidunum University, Belgrade, Serbia
[c] Faculty of Computer Science, Singidunum University, Belgrade, Serbia
[d] Department of Marketing, Events and Tourism, University of Greenwich, UK

HIGHLIGHTS

- For-business hotel service encounters are evaluated less favorably (4% on average).
- This effect is strongly moderated by personal-, hotel- and country-level factors.
- The adverse effect is smaller for more work-oriented individuals.
- Traveling for business is linked to intensified perception of cultural differences.
- Based on our results, managers can intelligently target the business segment in ads.

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ABSTRACT

The purpose of this study is to examine the association between traveling for business and customer satisfaction with hotel services. To that end, a multilevel analysis is conducted of an empirical dataset comprising over 1.6 million customer reviews pertaining to 13,410 hotels located in 80 major urban tourism destinations across the world. The results suggest that customers report significantly lower (4% on average) levels of overall satisfaction with hotel services after for-business stays than after for-pleasure stays. This effect is, moreover, found to be moderated by certain contextual factors, such as the traveler's general leisure versus work orientation, and the economic and cultural characteristics of the destination and the traveler's country of origin. Most importantly, the effect is found to be strongly moderated by certain hotel attributes; this finding allows hotel managers to offset the adverse effect by focusing on, and investing in, those attributes, making their properties more competitive.

1. Introduction

Business and leisure travelers are the two major market segments of the contemporary hotel industry. Besides having different travel motivations, the segments are shown to exhibit differences regarding information search behavior (Jones & Chen, 2011), hotel selection criteria (Yavas & Babakus, 2005), and preferences for hotel attributes (Kashyap & Bojanic, 2000). These facets are well-established research topics represented by a large body of empirical evidence in the literature.

Nevertheless, little attention has been paid to the observed differences in reported levels of post-purchase satisfaction between the two segments. It has been shown that for-business hotel service encounters are, on average, evaluated less favorably than for-leisure encounters, with the difference being substantial in its magnitude and robust to controls for numerous relevant factors (Banerjee & Chua, 2016; Lawrence & Perrigot, 2015; Lewis, 1984; Radojevic, Stanisic, & Stanic, 2017). The rare explanations for this

phenomenon offered in the literature focus on the personal characteristics of frequent business travelers (Lawrence & Perrigot, 2015) as well as the inconveniences typically associated with business travel (Radojevic et al., 2017), but no conclusive empirical evidence that would support these explanations has been provided. The aim of this study is, thus, to examine in more detail the effect of traveling for business on the evaluation of hotel services. The study employs a multilevel modeling framework to derive an unbiased estimate of the average difference in the reported levels of satisfaction between the two types of encounter, as well as to examine whether the difference changes as a function of certain contextual factors (personal characteristics of the customer, hotel attributes, etc.).

The results obtained in this study are important for advancing the existing theoretical approaches to customer satisfaction, especially the dispositional (Plog, 2002; Sirgy, 2010, p. 246) and the encounter (NOE, Uysal, & Magnini, 2010) approaches, but are also valuable to hotel managers, who can learn what can be done to counteract the negative effect of business travel and achieve higher levels of customer satisfaction, which is vital in the highly competitive hotel market.

2. Literature review

Business trips are trips undertaken for purposes related to work (Davidson, 1994). In contrast, leisure trips are undertaken for pleasure, with their motivations including rest and relaxation; spending time with friends and family; meeting new people; shopping; attending sports events; visiting historical and cultural sites; or experiencing places perceived to be exotic, romantic, or having good scenery or nice weather (Lee, Huang, & Chen, 2010; Murphy, Benckendorff, & Moscardo, 2007).

2.1. Differences in service evaluation

The literature has documented significant differences in the post-purchase evaluation of hotel services between the two segments. Specifically, it has been found that for-business stays systematically receive lower ratings than for-pleasure stays. One of the earliest pieces of evidence on this difference was provided by Lewis (1984). After comparing the assessments of hotel customers in 22 different perception categories, he found that business customers reported lower perceptions in all categories, with 20 of the differences being statistically significant at alpha 0.05. On a scale of 1 through 5, the differences ranged from −0.26 for "reservation system" to −0.78 for "extra amenities and conveniences," with an average of −0.49. A similar pattern is observed in more recent studies, most of which have examined online reviews from TripAdvisor. Lawrence and Perrigot (2015) examined around six thousand customer ratings and noted that business customers assigned lower values for all six of TripAdvisor's criteria-specific ratings. The differences ranged from −0.10 for "cleanliness" to −0.44 for "value," with an average of −0.21. Banerjee and Chua (2016) analyzed nearly forty thousand online ratings and concluded that business travelers assign lower ratings in all four geographical regions examined, with the difference being smallest in the Middle East and Asia (approximately −0.07) and highest in Europe (approximately −0.27), with an average of −0.16. Radojevic et al. (2017) examined more than one and a half million online reviews and found differences varying between −0.07 for the "location" criterion to −0.21 for the "value" criterion, with an average of −0.15 and a difference in "overall" satisfaction of −0.18.

Even though the difference in the reported levels of satisfaction between the two segments seems to have declined over time

(from −0.49 in 1984, to −0.21 in 2015, to −0.16 in 2016, and finally to −0.15 in 2017), the literature clearly suggests a substantial negative association between traveling for business and customer satisfaction with hotel services.

2.2. Factors associated with business travel that may reduce satisfaction

When interpreting the results of the studies mentioned above, it is important to bear in mind that the observed differences may not be caused entirely by the purpose of travel. It is likely that at least part of the differences is a consequence of some unobserved (confounding) factors that are positively correlated with business trips and negatively correlated with customer satisfaction. For instance, Lawrence and Perrigot (2015) assumed that there was positive confounding at the level of individual customers. They hypothesized that the reason for the negative difference is that frequent business travelers (who are more likely to undertake business trips) are comparatively more experienced users of hotel services, and hence are more critical of service quality, than leisure travelers. This hypothesis is supported by the results of a recent study (Radojevic et al., 2017) in which a customer's travel experience was shown to be negatively associated with his or her reported levels of satisfaction. Similarly, it may be hypothesized that business travelers, who are known to be highly educated and to have higher income (Millar & Baloglu, 2009; Yavas & Babakus, 2005), have relatively higher personal standards for accommodation and related services, and hence give sterner reviews than leisure travelers. Confounding effects may also take place at other levels, including customers' nationality, hotels, or destinations. For instance, it may be true that nations generating more outbound business tourism are more developed and, hence, citizens of these countries are harsher[1] when evaluating the quality of hotel services, or that destinations or hotels attracting more business travelers are generally less attractive or provide below-average hotel services.

It is also to be expected that there is a direct adverse effect of traveling for business on customer satisfaction with hotel services, above and beyond the effect of confounders. For this study, direct adverse effects of traveling for business are defined as characteristics of encounter determined by the purpose itself, which materialize immediately prior to or during the for-business stay and adversely affect the overall customer experience.

2.3. The direct adverse effect of business travel on customer experience

Based on a review of the relevant literature, two potential encounter-level sources of dissatisfaction among business travelers have been identified. These are the inconveniences inherent in business travel and a lack of consideration for the traveler's preferences for hotel and destination attributes.

The first set of arguments relates to the main purpose of the trip being business, rather than leisure; this may interfere with the traveler's ability to enjoy his or her stay at the hotel to the fullest, may impair the overall customer experience, and may thus result in lower levels of satisfaction. It has been documented that, while traveling for business, people often work more hours than they do at the office (Expedia Viewfinder Travel Blog, 2013), feel stressed and are concerned about the more demanding and heavy workload waiting on their return (Striker et al., 1999), and

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[1] Some authors report that average levels of customer satisfaction vary by country (Kozak, 2001; Liu, Teichert, Rossi, Li, & Hu, 2017).

suffer from jet lag and sleep deprivation (Burkholder, Joines, Cunningham-Hill, & Xu, 2010). Also, because business trips are frequently made alone (National Travel & Tourism Office, 2015a; 2015b), travelers may feel isolated from family and friends during their stay.

The second potential encounter-level source of dissatisfaction with business trips is an increased mismatch (or a suboptimal match) between travelers' preferences and the characteristics of selected destinations and hotels. In contrast to leisure travel, where travelers choose destinations with interesting historical and cultural sites, or those perceived to be exotic or romantic or to have good scenery or nice weather (Lee et al., 2010; Murphy et al., 2007), destinations for business trips are, by definition, determined by business opportunities (Buhalis, 2000) and are typically chosen without any consideration of the traveler's personal preferences for destination attributes. Similarly, whereas hotel selection for leisure travel is driven by personal preferences for hotel attributes, the selection for business travel is often influenced (if not determined) by the convenience of the hotel's location, in terms of proximity to facilities that need to be visited and the local airport, etc., or the availability of business-related facilities such as meeting and conference rooms. The lack of the customer's voice when selecting the destination and lodging facilities is expected to result in decreased satisfaction with the services (Franke, Keinz, & Steger, 2009).

While the effect on customer satisfaction of traveling for business is expected to be, on average, negative, for the reasons explained above, it is highly unlikely that the effect is identical across all instances. It is more realistic to assume that the magnitude of the effect varies depending on certain contextual factors.

2.4. Potential moderators

The first group of potential moderators is the personal characteristics of the traveler; business travel is not expected to affect each person in the same way. For instance, people who are more work-oriented may be intrinsically motivated to undertake business-related activities (including business trips), and may have higher tolerance for work-related stress. Frequent business travelers are, due to their relatively high education (Graig-Smith, 2000) and high income (Weaver & Chul Oh, 1993), expected to be stern hotel reviewers; however, since they are also likely to develop high intercultural competence and are apt to learn to deal more efficiently with the inconveniences associated with business travel, they may evaluate for-business hotel service encounters more favorably than frequent leisure travelers. Moreover, individuals holding high positions in organizations and earning a higher income are expected to have influence over the process of hotel selection, thus reducing the anticipated preferences-attributes mismatch associated with business travel.

Another group of potential moderators is characteristics of the selected properties; properties whose facilities, services, and policies are better tailored to the needs of business customers may reduce the adverse effect on customer satisfaction of traveling for business. Research shows that when on business trips people interact differently with the hotel amenities and attach different degrees of importance to various facets of quality than they do when on leisure trips (Kashyap & Bojanic, 2000). For instance, a pre-arranged check-in,

convenience for business, on-site parking, no surcharges for long-distance calls, and wake-up calls are highly appreciated in the context of business travel (Weaver & Chul Oh, 1993), whereas ambience and the quality of personal interactions with employees may be of higher importance in the context of leisure travel (Yavas & Babakus, 2005). The literature on how preferences for hotel attributes vary between the two segments is abundant (Chu & Choi, 2000; Dolnicar & Otter, 2003; Gundersen, Heide, & Olsson, 1996; Knutson, 1988). Since the purpose of the travel affects the traveler's preferences for hotel attributes, the attributes of the property selected are expected to moderate the relationship between travel purpose and customer satisfaction.

Finally, economic and cultural characteristics of both the destination and the traveler's country, as well as the interplay between these in terms of their complementarity, may moderate the effect. For instance, given that business travelers frequently travel alone, an increase in the difference between the two cultures may intensify the business traveler's feelings of loneliness and alienation. By contrast, a domestic business trip may be made by car, be shorter, and be far less tiresome.

2.5. Identifying the knowledge gap and providing the rationale for this study

To summarize, the existing body of literature suggests that there is a substantial difference in reported levels of satisfaction with hotel services between the leisure and the business segment, but it neither offers a comprehensive and empirically founded explanation for this difference nor provides strategies for dealing with its likely real-world consequences. Our aim in this study is to fill this gap.

3. Methodology

3.1. Data

This study employs a publicly available dataset (Radojevic, Stanisic, & Stanic, 2016) based on results of online surveys of customer satisfaction with hotel services that have been automatically collected from TripAdvisor. The complete dataset used in this study can be accessed and downloaded via the following URL address: https://data.mendeley.com/datasets/kwsrxshf9x/1. Even though reviews on TripAdvisor are not authenticated, the results of a study conducted by Chua and Banerjee (2013) suggest that they can be regarded as fairly reliable. This, combined with the fact that TripAdvisor is the world's largest travel site, makes TripAdvisor a data source that is popular with the research community.

The initial dataset comprised 3,488,473 customer ratings, provided by 2,233,671 unique registered TripAdvisor users of 210 different nationalities, and related to 13,410 hotels located in 80 capital cities around the globe. The ratings represent self-reported encounter-specific customer satisfaction with hotel services and take one of the following numerical values and corresponding descriptive labels: 1 ("terrible"), 2 ("poor"), 3 ("average"), 4 ("very good"), and 5 ("excellent"). In addition to assigning an overall satisfaction score, reviewers may also evaluate the hotel service on six relevant criteria: "location," "cleanliness," "rooms," "service," "sleep quality," and "value." They also report the type of travel for the specific encounter: "business," "couple," "family," "friends," and "solo." All of the
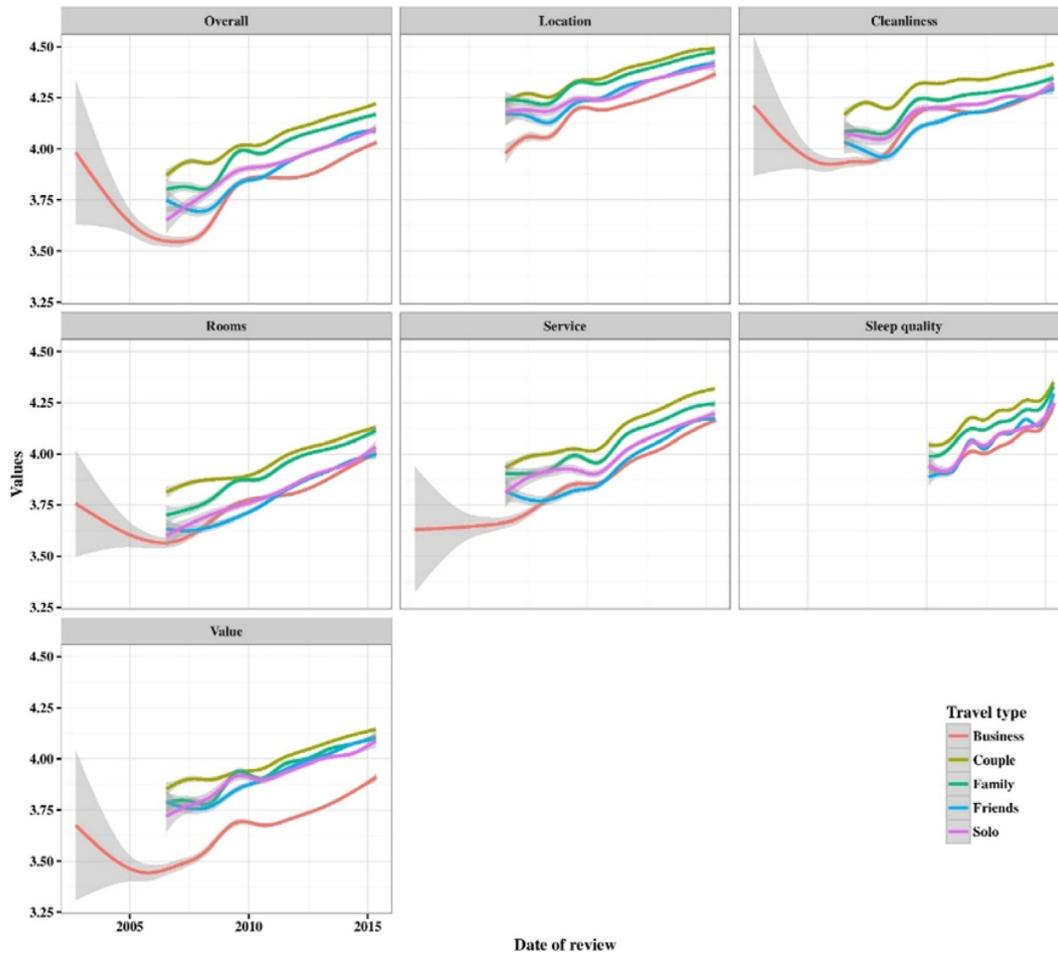
Fig. 1. Smoothed trend of average rating scores by travel type over the observed period (2002–2015).

Table 1
Number of encounters in the sample by hotel star classification and trip purpose.

		Star classification									Total
		1	1.5	2	2.5	3	3.5	4	4.5	5	
Trip purpose	Leisure	5298	520	55,762	20,946	338,882	96,589	504,510	77,865	233,230	**1,333,602**
	Business	234	61	5379	3327	54,001	26,624	127,809	27,276	79,861	**324,572**
	Leisure	0.40%	0.04%	4.18%	1.57%	25.41%	7.24%	37.83%	5.84%	17.49%	**100.00%**
	Business	0.07%	0.02%	1.66%	1.03%	16.64%	8.20%	39.38%	8.40%	24.61%	**100.00%**

ratings in the sample were provided between 31 August 2002 and 15 May 2015, and the smoothed trend of average rating scores by criteria and by travel type, over the observed period, is shown in Fig. 1.

Fig. 1 illustrates that, before controlling for the other relevant factors (e.g., hotel quality, destination attractiveness), customers traveling for business report the lowest levels of satisfaction with hotel services, especially in terms of the Value criterion. Somewhat higher levels of satisfaction are reported by friends and solo travelers, whereas couples, followed by families, report the highest levels of satisfaction. This preliminary finding is consistent with the findings of prior studies that the social context of travel, particularly traveling for business, may affect the levels of satisfaction reported by hotel customers.

Another pattern observable in Fig. 1 is the temporal trend of an increase in the average valence of rating scores. Interestingly, this trend is consistent with the "TripAdvisor effect" hypothesized by Smyth, Wu, and Greene (2010), which suggests that, owing to the existence of TripAdvisor (and perhaps a few other influential websites disseminating consumer reviews), hotel service providers are increasingly: a) motivated to improve their services in order to avoid negative comments that can reach a wide audience, and b) informed about what should be changed in order to improve their service.

The rating scores were combined with the corresponding hotel-level and reviewer-level information available on TripAdvisor at the moment of data collection. Hotel-level information included a comprehensive list of the attributes of all the

hotels that were reviewed; these attributes were classified into the following categories: star classification, general characteristics of the hotel, available room types, room equipment, facilities, services, Internet connection, recreation and relaxation, support for people with disabilities, smoking policy, and pet policy. Detailed descriptive statistics for the hotel-level variables are presented in Appendix A. Reviewer-level information included the reviewer's nationality, as estimated by Google's geocoding service based on the self-declared location of the reviewer, and his or her TripAdvisor rank. National-level variables shown to be relevant for customer satisfaction were added to the dataset; these variables were level of economic development (as measured by nominal GDP per capita in US$ obtained from The World Bank (2014)) and cultural characteristics (as measured by scores on the six cultural dimensions defined by Hofstede (2010)) of both the destination country and the reviewer's home country. Finally, given the aim of this study, the aggregated relative frequency of business travel for all subjects at the four higher levels was calculated (i.e., business trips as a percentage of total trips reviewed for each customer, business customer reviews as a percentage of all customer reviews for each property, business visits as a percentage of all visits for each destination, and business travelers as a percentage of total travelers for each reviewer country of origin).

Because there were some missing observations for the variables included in the dataset, the size of the final dataset used for model fitting decreased to 1,658,174. For the final sample, the frequencies of hotel service encounters, by hotel star classification and trip purpose, are presented in Table 1.

3.2. Modeling framework

The dependent variable in this study is the overall rating score, which stands for the encounter-specific overall customer satisfaction with the hotel services. As the focal explanatory variable is whether the travel is for business, the "travel type" variable available from TripAdvisor was re-coded in the following way: all leisure travel, including traveling solo, as a couple, with family, and with friends, was coded as 0, whereas business trips were coded as 1. Descriptive statistics supported the findings of previous studies that business travelers report significantly lower levels of satisfaction than leisure travelers (see the first row of the table in Appendix A), despite the fact that they typically stay in more expensive properties (see the second row of the table in Appendix A). Moreover, exploratory data visualizations showed that the difference is relatively consistent across destinations (see Appendix B), as well as across the evaluation criteria[2] (see Fig. 1). Nevertheless, owing to the complex structure of the dataset (presence of repeated measures and a hierarchical structure), and the fact that customer satisfaction is influenced by factors operating at different levels, the differences calculated (or observed) in such a simplistic way are expected to be biased (spuriously inflated or deflated). In order to disentangle the relevant factors, and to examine their individual contributions to the observed difference, a hierarchical regression modeling framework proposed by Radojevic et al. (2017) was employed. This framework included the following levels of analysis: 1) service encounter, 2) visitor, 3) visitor's nationality, 4) hotel, and 5) destination. The clustering of the observations was accounted
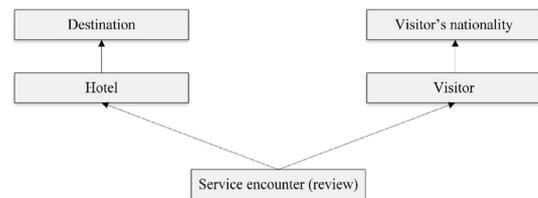

Fig. 2. Classification diagram.

for using random intercepts for the second to fifth levels (the first level is the "observation" level). This framework was extended by including random slopes for two variables for which the importance was expected to vary meaningfully across the destinations. The first random slope was for the air-conditioning variable, which may vary in importance depending on the climate of the destination. The second random slope was included for the variable measuring distance from the city center, the importance of which was expected to vary across the destination cities because of their different sizes and specific spatial layouts. Inclusion of the two random slopes should have resulted in a more realistic model, and thus, more precise estimates of the parameters, and this was confirmed based on information criteria in a preliminary analysis.

Most importantly, to examine the possibility that contextual factors moderate the effect of traveling for business on customer satisfaction, the design was further extended by including cross-level interaction terms. A multiplicative cross-level interaction term of the business trip dummy indicator with each of the explanatory variables except for the dummy itself was included.

The resulting model is specified using the "classification notation" (Browne, Goldstein, & Rasbash, 2001) as follows:

$$y_i = x_i\beta + u^{(2)}_{visitor(i)} + u^{(3)}_{vis\ national(i)} + u^{(4)}_{hotel(i)} + u^{(5)}_{destination(i),0}$$
$$+ u^{(5)}_{destination(i),1}aircnd_i + u^{(5)}_{destination(i),2}dist_i + e_i$$

where $x\beta$ refers to the fixed (population-level) effects, inclusive of the grand intercept, the main effects, and the interaction terms; random (group-level) effects are denoted by u with superscripts indicating the corresponding classifications (level 1 is omitted by convention); i indexes the observation level (individual reviews); $visitor(i)$, $vis\ national(i)$, $hotel(i)$, and $destination(i)$ are functions that return the unit number of the visitor, the visitor's nationality, the hotel, and the destination, respectively, that are associated with the ith review; and e refers to the lowest level residuals. The random intercepts are assumed to be normally distributed, independent across classifications and independent of any predictor variables that are included in the model (Rasbash, Leckie, Pillinger, & Jenkins, 2010). The two random slopes are assumed to be normally distributed and possibly correlated with each other as well as with the associated random intercept.

The hierarchical relationships present in the data are specified using the following classification diagram[3] (see Fig. 2):

To check whether the estimates of the effects are reasonably stable across different model specifications, the model was built iteratively by increasing the number of explanatory variables at each of the four iterations. The first model accounted for the hierarchical and clustering structure of the data, but included

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[2] It is also worth noting that, among leisure travelers, the highest satisfaction was reported by couples, followed by families, friends, and solos. This ordering is, however, highly sensitive to centering decisions, as reported by Radojevic, Stanisic, and Stanic (2015).

[3] Two nodes connected by an arrow indicate a nested relationship, whereas two unconnected nodes indicate a crossed relationship (Rasbash et al., 2010).
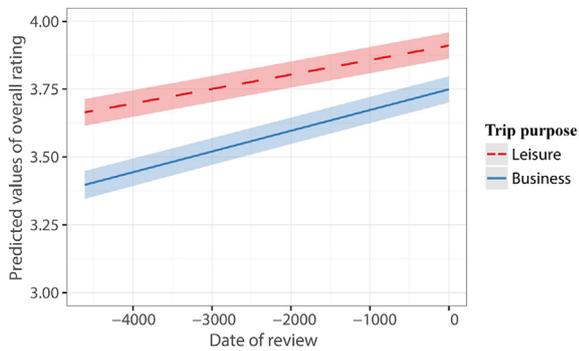
Fig. 3. Temporal trends in average overall rating scores by market segment (number of days before 15 May 2015 on x axis, predicted overall rating score on y axis).


Fig. 4. Moderation effect of customer's travel profile (mean centered business trips as a percentage of total trips on x axis, predicted overall rating score on y axis).

only the temporal and the trip purpose variables as predictors of customer satisfaction. In the second model, visitor-level explanatory variables were added. Hotel-level explanatory variables were added in the third model, and in the final/full model, the predictors pertaining to destination and reviewer's nationality were added. In order to facilitate the interpretation of the intercept term, all the hotel- and national-level variables were centered at their respective grand means, and the time dimension was centered at the most recent observations. All the calculations for this study were conducted by using the R software environment for statistical computing (R Core Team, 2015) and its associated software package lme4 (Bates, Mächler, Bolker, & Walker, 2015). The interaction terms were visualized using the "sjPlot" package (Lüdecke, 2016), and the regression output was formatted using the "stargazer" package (Hlavac, 2015).

4. Results

The complete output from the regression analysis is presented in Appendix C. The estimates of the random effects for each of the four models are presented in Appendix D.

4.1. The difference in ratings between leisure and business encounters

As previously stated, the first goal of this study was to estimate the difference in reported levels of customer satisfaction with hotel services between for-leisure and for-business trips. The appropriate estimate of this difference is obtained from the first model, which, besides controlling for the hierarchical and clustering structure of the data, includes only the temporal trend and the trip purpose variable. Accounting for the temporal trend is important because the steady increase in the average rating scores through the observed period was steeper (see Fig. 3) for the business segment. As a result, the average difference decreased from −0.267 in 2002 to −0.162 in 2015.

Combining the estimate of the most recent difference between the segments with that of the intercept, it can be concluded that the expected rating for a hotel service encounter in 2015 is 3.911 for a leisure trip, and 3.749 for a business trip. The implied 4% difference is likely to be of practical significance for hotels.

4.2. The "indirect" effects of business travel

The analysis of the influence of aggregated trip purpose variables (see Appendix E for a summary visualization) confirms our
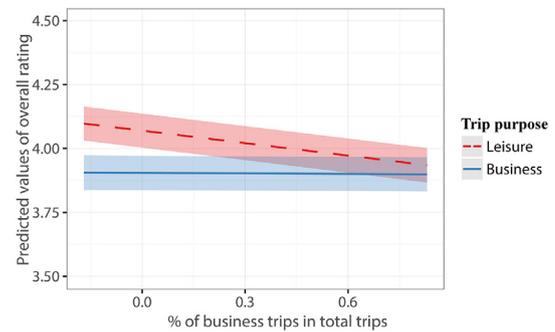
prior belief that a large proportion of dissatisfaction is induced by the contextual factors associated with a typical business trip, rather than by direct effects. First, frequent business travelers are stern evaluators (Appendix E, upper left quadrant). Second, hotels visited mainly for business purposes receive lower ratings (Appendix E, upper right quadrant), especially on the "value-for-money" and "location" criteria (see Fig. 1).[4] Dissatisfaction with value-for-money is consistent with the "lack of customer's voice" hypotheses presented in the literature review section: business-oriented hotels are relatively more expensive, but are not chosen on the basis of the customer's personal preferences for hotel attributes. Dissatisfaction with location is also consistent with the "lack of customer's voice" hypothesis: hotel location is determined by the convenience (or availability) of business facilities, rather than by proximity to local tourist attractions. Third, destinations relying primarily on business travel are evidently not those that tourists find most attractive (Appendix E, lower left quadrant).

Nevertheless, even after accounting for the adverse effects of these contextual variables there still remains a negative difference of −0.05 (Model 4). Consistent with the "inconvenience of business trip" hypothesis, this portion of dissatisfaction should be attributed to the direct effect of a trip being a business trip: workload and the related stress interfere with customers' ability to enjoy their stay and to use all the services offered by the property.

Given the substantial magnitude of the effect of traveling for business and its potential practical consequences, the study proceeded to identify the contextual factors capable of reducing or inflating this adverse effect.

4.3. The moderation analysis

For the purposes of the moderation analysis, the focus was on the results of the final regression model (Model 4) presented in Appendix C. The estimates of the main effects (presented in the first column) are highly consistent with those reported in earlier studies using a similar research design (Radojevic et al., 2017). This time, the main focus of the analysis is on the coefficients with the interaction terms (presented in the second column), because they, when statistically significant, provide evidence that trip purpose moderates the effect of the corresponding factor on customer satisfaction.

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[4] Dissatisfaction with these two criteria gets "spilled over" during the evaluation process to the remaining four criteria and, eventually, the overall rating of the services.
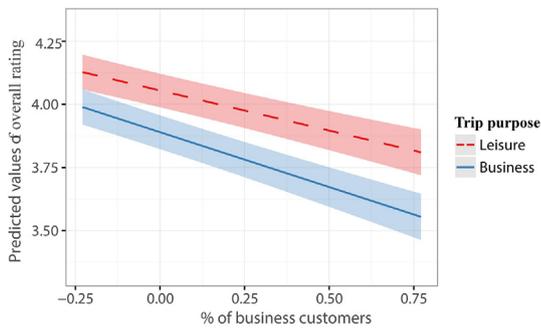
Fig. 5. Moderation effect of a hotel's customer profile (mean centered business customers as a percentage of total customers on x axis, predicted overall rating score on y axis).

4.3.1. Traveler-level variables

Personal travel profile (i.e., business trips as a percentage of an individual's total number of trips) appears to be a very important moderator: frequent business travelers are significantly less satisfied with for-leisure hotel stays than frequent leisure travelers. The moderation effect is illustrated in Fig. 4.

One possible explanation for this observed effect is that frequent business travelers and frequent leisure travelers have different psychological traits. For instance, the personal characteristic of "venturesomeness" has been linked to travel satisfaction in several studies (Plog, 2002). Leisure-oriented individuals are expected to be more venturesome, and thus they may be able to enjoy their leisure trips more fully. Business-oriented individuals are, on the other hand, more dependable, but they may be alienated from leisure to a certain degree. According to the "compensation" theory (Kabanoff, 1980), people tend to compensate for dissatisfaction in the leisure domain by trying to find more satisfaction in the business domain, which, in turn, may alienate them even further from leisure. Another explanation is offered by the "spillover" theory (Staines, 1980): as work-oriented people may occupy themselves with work-related activities even when on leisure trips, the resulting work-related tension may spill over into non-work activities, adversely affecting the overall travel experience. Even though the cited theories provide sensible explanations for the observed moderation effect, the study design does not allow us to rule out the possibility that the effect is a result of some other common personal characteristics recognized earlier (see the literature review section), such as high education or high income.

4.3.2. Hotel-level variables

Among the hotel attributes examined, the following are shown to moderate, both significantly (p < .01) and meaningfully (estimated moderation effect on rating > 0.01), the relationship between trip purpose and customer satisfaction: star classification, number of rooms in the hotel, percentage of business customers, suites, air conditioning, free parking, bar, business center with Internet access, babysitting, multilingual staff, free breakfast, free Internet service, fitness center with gym, spa, access to beach, and nonsmoking hotel policy.

The results suggest that neither segment prefers staying in a typical business hotel. The general negative effect of an increased orientation towards business customers for a hotel can be attributed to the fact that hotels that have an edge in the form of a convenient location or business facilities may not be motivated to offer high-quality services. Business travelers' satisfaction is more adversely affected than leisure travelers' satisfaction (there is a −0.32 vs. −0.43 change in average rating expected for an extreme change from an exclusively leisure-oriented to an exclusively business-oriented hotel), which may be attributed to the "lack of preference-attribute match." In other words, even when they decide to stay in a dominantly business-oriented property, leisure travelers do so after carefully considering its attributes and assuring themselves that those attributes match their personal preferences. By contrast, in the case of a business stay, the chances are that such a property has been chosen for its convenience for doing business, rather than its match with the customer. The moderation effect is illustrated in Fig. 5.

Generally, the results obtained are consistent with previous findings that business travelers attach relatively more importance to convenience and the amenities of the room than do leisure travelers (Gundersen et al., 1996; Yavas & Babakus, 2005). The results show that business travelers have a relatively stronger preference for highly rated properties than leisure travelers. For illustration, while the estimated difference in the expected ratings between a 1-star and a 5-star hotel for leisure travelers is 0.47, for business travelers it is 0.67. Business travelers also prefer spacious suites (+0.02) with air-conditioning systems (+0.02). Furthermore, they are more adversely affected by the potential inconveniences associated with a large number of rooms—more guests, resulting in crowded facilities and delays in service, smaller rooms, or rooms located at the ends of long corridors.

As a result of their busy schedules and lifestyle, business customers appreciate having a business center (+0.02) and free Internet access (+0.03), and attach a little more importance to babysitting (+0.01). On the other hand, they are rather indifferent to amenities appreciated by leisure guests, such as a bar/lounge. Access to a beach does not provide a "good value for money" trade-off for business customers, and has a negative impact on their satisfaction. Because of their professional status, business travelers are generally well-educated (Graig-Smith, 2000) and speak foreign languages, so that they do not have a strong preference for multilingual staff. Having a relatively higher income, they may prefer choice over price, so a free breakfast is not appreciated (−0.02). They are also more health aware, and prefer properties with a fitness center with a gym (+0.01) and a spa (+0.02), and with a nonsmoking policy (+0.01).

It is surprising that no empirical evidence was found for a frequently highlighted assumption that leisure travelers are more price sensitive than business travelers. While this assumption is surely relevant in the pre-purchase stage, it seems that, once the service has been delivered, the increased price has an equally positive association with reported levels of satisfaction within the two market segments.

4.3.3. National-level variables

Given that the contextual variables (i.e., GDP and the cultural dimension scores) are mean-centered, positive values of the interaction terms are achieved when the destination and the customer's country of origin are similar (i.e., they both score either low or high on economic development or the particular cultural dimension), whereas large negative values indicate substantial dissimilarities. More favorable ratings are assigned when the level of economic development of the destination is similar to that of the customer's country of origin, but this effect
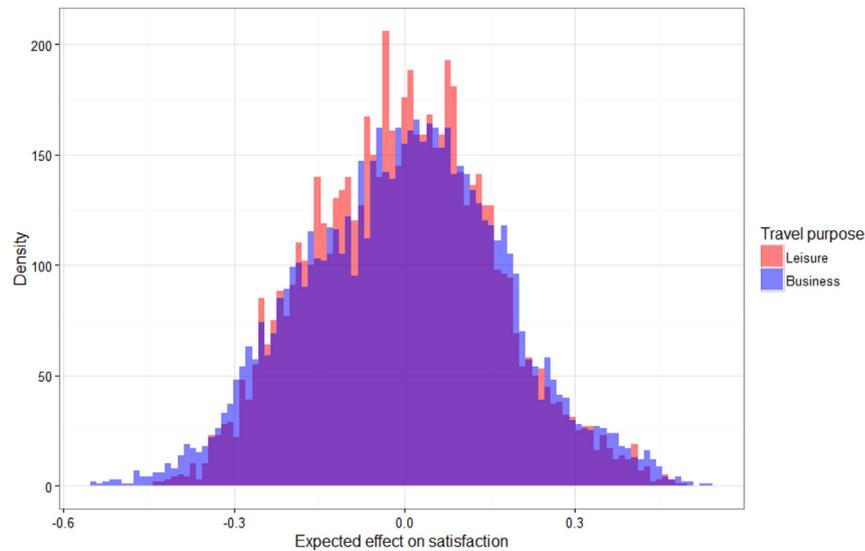
Fig. 6. Histogram of expected overall cultural effects across all 6400 national host-guest combinations for leisure and business travelers.

is consistent across the segments. Nevertheless, the views of customers coming from wealthier countries are significantly more stringent when they travel for business than for leisure, which is likely related to their higher expectations regarding that aspect of life.

Culture has been shown to play a role in the evaluation of hotel services. This finding should not be surprising, since nations whose cultural dimensions are very different are also likely to be distant in regard to language, cuisine, climate, aesthetics, customs, and other factors relevant for the hotel industry. Using the regression co-efficients obtained, a histogram was plotted (Fig. 6) showing the expected effects of all 6400 cultural combinations (80×80, where 80 is the number of countries for which scores on Hofstede's cultural dimensions are publicly available) for leisure and business travelers separately.

It seems that moderate cultural differences affect business travelers in a slightly more positive way than leisure travelers (the center of distribution of the effects is slightly shifted to the right for the business segment), which can be attributed to their relatively higher intercultural competence. However, as the differences increase, the effects of culture become more extreme for business travelers (the distribution for the business segment has fatter tails), and this is especially true for the negative effects. The more pronounced negative influence of culture in cases when the differences are extreme may be attributed to the more intense exposure to an alien culture that typically occurs with business travel. In other words, leisure travelers typically remain in a tourist bubble (with tourist guides, family, friends, et al.), and mainly interact with in-dividuals who are trained to communicate with tourists, which reduces the intensity of the exposure to the alien culture and allows the travelers to perceive extreme cultural differences as exotic and fascinating (coefficients with interaction terms are negative except for the one for individualism). By contrast, business travelers often lack a tourist bubble, and, furthermore, are expected to have intense interaction with people at the destination (Beaverstock, Derudder, Faulconbridge, & Witlox, 2010), which results in an increased level of exposure to the dissimilar culture and gives rise to the issues that such exposure

brings (Hottola, 2004) (positive coefficients with all interaction variables except for the one for individualism).

5. Conclusions

This study demonstrates that hotel customers report system-atically lower (−0.162, or approximately −4%) overall satisfaction with the services they receive if they travel for business rather than for leisure.

5.1. Practical implications of the main effect of business travel

This difference has some important practical consequences. It implies that, without any intervention on the part of the info-mediation platforms, hotels that primarily serve the business market segment are expected to have a somewhat lower average rating score than their matching leisure-oriented counterparts. Given the role of average ratings in the ordering of search results and hotel selection, such a bias may have serious negative con-sequences for the competitiveness of business-oriented proper-ties. It seems, however, that the major services have recognized this bias, as they have implemented technical solutions that take travel purpose into account when presenting customers with search results. For instance, TripAdvisor allows customers to filter properties by "style," and, within the properties, to filter reviews by traveler type, with business being present as an option in each filter. Similarly, Booking.com prompts customers to declare their travel purpose before providing the list of results, and, moreover, allows them to sort the properties based on the average rating assigned for the specific type of travel (with business being one of these), rather than on overall average rating. The rationale for the implementation of these options and filtering tools is perfectly clear in light of the findings of this study, and customers should not ignore them but, rather, should use them wisely to boost their experience.

5.2. Implications of the moderation effects

The study also finds that the magnitude of the negative effect

of travel purpose is not uniform in all circumstances, but rather depends on certain contextual factors. The adverse effect is much smaller for business travelers who travel very frequently (more work-oriented individuals), and in cases when the economic development and cultural characteristics of the destination are similar to those in the traveler's homeland. Despite their interest from a theoretical perspective, these findings are not particularly valuable for hotel managers, because the listed factors are not under their control. However, the finding that certain hotel attributes are capable of moderating the effect is highly relevant for managers. Sound knowledge about the target group is a precondition for successful market segmentation (Dolnicar, 2002), and our results provide hotel managers with a chance to update their beliefs on the relative importance of the attributes for their target segment, and to focus on those aspects that are perceived to be more valuable. An average property should expect to neutralize or even reverse the negative effect of travel purpose on their business customers by offering the following features, which business travelers find particularly important, in the following order of priority: free Internet access, business center with Internet access, free parking, suites, air conditioning, nonsmoking policy, fitness center with gym, spa, and babysitting. Since such decisions typically involve capital investments or giving up existing revenue (e.g., in switching from for-purchase to free Internet access), they should always be made within the cost-benefit framework in addition to being considered as a "value for money trade-off" from the customer's point of view. On the other hand, managers can make considerable savings on features that business travelers do not find valuable, such as proximity to the city center, free breakfast, lounge or bar, multilingual staff, and beach access.

Based on our results, managers can also intelligently target the two segments with two different approaches, each highlighting those hotel features that are shown herein to have more importance to the respective segment.

5.3. The value of this study

This study has some important advantages over studies extant in the literature. The large sample, the extensive geographical coverage, and the large number of explanatory variables make the results of this study highly generalizable within the context of urban tourism destinations. Another major advantage of the study lies in the multilevel design that was adopted; this allowed us to isolate the effect of interest better. Previous studies have routinely equated two rather different notions: 1) being on a business trip—which is a characteristic of a specific hotel service encounter; and 2) being a (frequent) business traveler—which is a personal characteristic of the traveler. This circumstance, combined with the fact documented above that frequent business travelers are sterner evaluators, resulted in positive confounding, and hence overestimated the negative effect of the business purpose. To the best of our knowledge, this is the first study to disentangle the two effects by handling them at different levels, the first effect at the encounter level and the second at the customer level.

5.4. Limitations and recommendations for further research

Finally, the study has certain limitations that need to be recognized.

Obviously, the distinction between business and leisure travel is not clear-cut. As described by Davidson (1994), business travel may involve a substantial leisure element. The likelihood that the travel purpose determined and declared by the traveler is the primary, but not the exclusive, travel purpose should be recognized, and should be expected to have some minor effects on the accuracy of the reported estimates. Furthermore, as implied by the variable recoding procedure presented in the methodology section, both leisure and business trips include instances of traveling solo as well as in a group. The interplay of these two overlapping dimensions was beyond the scope of this study, but may be the subject of some future research.

Another potential limitation may be that the customer's travel profile is included only as a main effect, and not as a moderator. For instance, frequent business travelers may have different preferences for hotel attributes than frequent leisure travelers, and this difference may, further, be conditional on the purpose of travel. This modeling option was seriously considered and examined, but the resultant increase in complexity of the interpretation outweighed the perceived benefits of the added insights.

Also, the scope of the moderation analysis, especially at the customer and hotel level, was constrained by the quantitative variables available at TripAdvisor. Data on some potentially relevant qualitative factors, such as venturesomeness or intercultural competence (at the customer level), and reputation, staff friendliness, and ambience (at the hotel level), were not available.

Even though the effects of most variables were, by the specification of the statistical models used in this study, assumed to be constant throughout the observed period (2002—2015), it is to be expected that at least some of the variables (for instance, hotel attributes such as Internet access, fitness center, etc.) did gain importance. The temporal trend in the coefficients with variables on all levels can be examined and accounted for by including interaction terms involving the respective variables and the time variable. This modeling option should be considered in some future research.

While their main effects on customer satisfaction are implicitly controlled for through the unobserved heterogeneity parameters (customer- and hotel-specific random effects), an assessment of their potential to moderate the effect of business travel on customer satisfaction remains beyond the reach of this study.

Owing to the circumstance that only hotels located in capital cities were included in the sample, the generalizability of the results presented in this study is limited to hotels located in urban travel destinations as defined in the literature (Ashworth & Page, 2011; Page & Hall, 2003; Page, 1995), or, more specifically, to capital cities.

Finally, the circumstance that a single website, namely TripAdvisor, has been used as the main source of data for the study may have implications for the generalizability of the results. The large sample size used in this study is not the remedy for any possible type of bias (coverage bias, self-selection bias, etc.) that may be present in the data collected from TripAdvisor. For a full discussion regarding the challenges of using Big Data in research studies, see Boyd and Crawford (2012) and Kaplan, Chambers, and Glasgow (2014). Future studies should verify the findings presented herein using different data sources.

Appendix A. Descriptive statistics for the hotel-level variables

	Variable name	Overall sample (N = 1,658,174)				Leisure trips (N = 1,333,602)	Business trips (N = 324,572)
		Mean	St. Dev.	Min	Max	Mean	Mean
	Overall rating score	4.06	0.97	1	5	4.10	3.91
General characteristics of the hotel	Price of stay (in euros, double occupancy)	185.43	125.98	8	999	181.63	201.05
	Hotel distance from the city center (in km)	3.42	3.44	0	29.45	3.30	3.87
	Number of rooms	215.69	229.03	1	3680	200.07	279.84
Room types	Suites	0.64	0.48	0	1	0.62	0.72
	Family rooms	0.72	0.45	0	1	0.71	0.76
Room equipment	Air conditioning	0.32	0.47	0	1	0.33	0.31
	Microwave	0.02	0.14	0	1	0.02	0.02
	Minibar	0.18	0.39	0	1	0.18	0.18
	Refrigerator in room	0.08	0.27	0	1	0.08	0.08
Facilities	Free parking	0.21	0.41	0	1	0.20	0.25
	Kitchenette	0.10	0.30	0	1	0.10	0.11
	Bar/lounge	0.78	0.41	0	1	0.77	0.83
	Self-service laundry	0.49	0.50	0	1	0.48	0.51
	Business center with Internet access	0.72	0.45	0	1	0.70	0.82
	Conference facilities	0.21	0.40	0	1	0.19	0.26
	Meeting rooms	0.74	0.44	0	1	0.72	0.85
	Banquet room	0.47	0.50	0	1	0.45	0.58
	Casino and gambling	0.01	0.12	0	1	0.01	0.02
Services	Babysitting	0.40	0.49	0	1	0.39	0.41
	Dry cleaning	0.68	0.47	0	1	0.66	0.75
	Multilingual staff	0.66	0.47	0	1	0.65	0.69
	Airport transportation	0.21	0.41	0	1	0.21	0.21
	Laundry service	0.75	0.43	0	1	0.74	0.78
	Children's activities (child/family-friendly)	0.13	0.33	0	1	0.12	0.15
	Free breakfast	0.29	0.45	0	1	0.30	0.25
	Concierge	0.68	0.47	0	1	0.67	0.69
	Room service	0.78	0.42	0	1	0.76	0.84
	Restaurant	0.78	0.42	0	1	0.76	0.88
	Shuttle bus service	0.27	0.45	0	1	0.27	0.28
Internet connection	Free Internet	0.94	0.24	0	1	0.94	0.93
	Free high-speed Internet (Wi-Fi)	0.90	0.30	0	1	0.90	0.88
	Wi-Fi (extra charge)	0.24	0.43	0	1	0.22	0.30
	Internet (extra charge)	0.27	0.44	0	1	0.25	0.33
	Public Wi-Fi	0.34	0.47	0	1	0.35	0.30
Recreation and relaxation	Ski-in/ski-out	0.00	0.02	0	1	0.00	0.00
	Fitness center with gym/workout room	0.57	0.50	0	1	0.54	0.72
	Spa	0.29	0.45	0	1	0.27	0.34
	Tennis court	0.20	0.40	0	1	0.19	0.26
	Golf course	0.02	0.12	0	1	0.01	0.02
	Hot tub	0.19	0.39	0	1	0.18	0.24
	Pool	0.33	0.47	0	1	0.30	0.44
	Beach	0.01	0.08	0	1	0.01	0.01
Support for people with disabilities	Wheelchair access	0.70	0.46	0	1	0.68	0.79
	Reduced-mobility rooms	0.10	0.30	0	1	0.09	0.11
Smoking policy	Nonsmoking hotel	0.35	0.48	0	1	0.35	0.33
	Nonsmoking rooms	0.91	0.29	0	1	0.90	0.92
	Smoking rooms available	0.08	0.26	0	1	0.07	0.08
Pet policy	Pets allowed (dog/pet-friendly)	0.26	0.44	0	1	0.26	0.26

Appendix B. Relative frequency polygons of rating scores assigned by leisure and business travelers by destination country
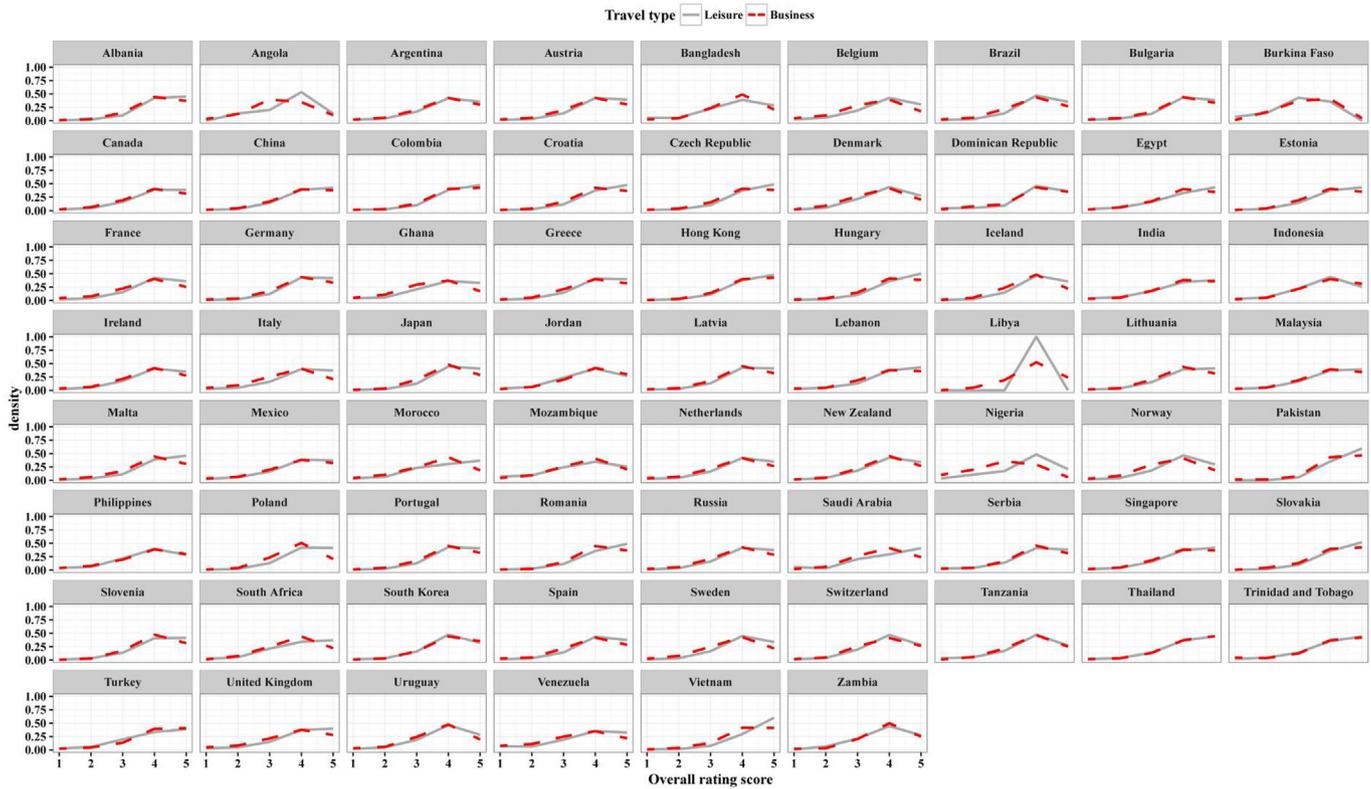
Appendix C. Complete output from the regression analysis

Variables		Model 1		Model 2		Model 3		Model 4	
		Leisure trip	Business trip (differential effects)	Leisure trip	Business trip (differential effects)	Leisure trip	Business trip (differential effects)	Leisure trip	Business trip (differential effects)
Date and purpose of the trip	Date of review	0.0001*** (0.00000)	0.00002*** (0.00000)	0.0001*** (0.00000)	0.00003*** (0.00000)	0.0001*** (0.00000)	0.00002*** (0.00000)	0.0001*** (0.00000)	0.00002*** (0.00000)
	Business trip	0 (*reference category*)	−0.162*** (0.003)	0 (*reference category*)	−0.120*** (0.008)	0 (*reference category*)	−0.083*** (0.010)	0 (*reference category*)	−0.050*** (0.012)
Reviewer's TripAdvisor rank	Senior reviewer			−0.013*** (0.003)	−0.013* (0.007)	−0.013*** (0.003)	−0.010 (0.007)	−0.013*** (0.003)	−0.010 (0.007)
	Contributor			−0.026*** (0.003)	−0.024*** (0.007)	−0.026*** (0.003)	−0.020*** (0.007)	−0.026*** (0.003)	−0.019*** (0.007)
	Senior contributor			−0.050*** (0.003)	−0.015** (0.006)	−0.050*** (0.003)	−0.009 (0.006)	−0.050*** (0.003)	−0.007 (0.006)
	Top contributor			−0.073*** (0.003)	−0.017*** (0.006)	−0.073*** (0.003)	−0.011* (0.006)	−0.072*** (0.003)	−0.010 (0.006)
Reviewer's travel profile	Business trips as a percentage of total trips			−0.171*** (0.005)	0.155*** (0.009)	−0.167*** (0.005)	0.153*** (0.009)	−0.163*** (0.005)	0.156*** (0.009)
Star classification	5 star					0.219*** (0.026)	0.086*** (0.009)	0.216*** (0.026)	0.070*** (0.009)
	4.5 star					0.173***	0.042***	0.172***	0.032***

(*continued*)

Variables		Model 1		Model 2		Model 3		Model 4	
		Leisure trip	Business trip	Leisure trip	Business trip	Leisure trip	Business trip	Leisure trip	Business trip
			(differential effects)		(differential effects)		(differential effects)		(differential effects)
						(0.030)	(0.010)	(0.030)	(0.010)
	4 star					0.088***	−0.010	0.082***	0.004
						(0.018)	(0.007)	(0.018)	(0.008)
	3.5 star					0 (*reference category*)	0 (*reference category*)	0 (*reference category*)	0 (*reference category*)
	3 star					−0.081***	−0.045***	−0.086***	−0.021**
						(0.017)	(0.008)	(0.017)	(0.008)
	2.5 star					−0.152***	0.009	−0.156***	0.039**
						(0.029)	(0.019)	(0.029)	(0.019)
	2 star					−0.256***	−0.062***	−0.264***	−0.022
						(0.025)	(0.015)	(0.025)	(0.015)
	1.5 star					−0.489***	−0.097	−0.497***	−0.065
						(0.125)	(0.119)	(0.125)	(0.119)
	1 star					−0.239***	−0.185***	−0.250***	−0.135**
						(0.047)	(0.058)	(0.047)	(0.058)
General characteristics of the hotel	Price of stay					0.429***	−0.050***	0.418***	0.008*
						(0.013)	(0.004)	(0.013)	(0.005)
	Distance from the city center					0.007	0.007***	0.006	0.009***
						(0.009)	(0.002)	(0.009)	(0.002)
	Number of rooms					−0.063***	−0.043***	−0.064***	−0.043***
						(0.007)	(0.003)	(0.007)	(0.003)
	Business customers %					−0.371***	0.023	−0.317***	−0.117***
						(0.040)	(0.014)	(0.041)	(0.019)
Room type	Suites					0.115***	0.017***	0.115***	0.016***
						(0.011)	(0.005)	(0.011)	(0.005)
	Family rooms					−0.024**	−0.010**	−0.026**	−0.004
						(0.010)	(0.005)	(0.010)	(0.005)
Room equipment	Air conditioning					0.042**	0.029***	0.037*	0.016**
						(0.018)	(0.006)	(0.019)	(0.006)
	Microwave					0.048	−0.008	0.054	−0.003
						(0.036)	(0.015)	(0.036)	(0.015)
	Minibar					−0.022	0.002	−0.023	0.003
						(0.015)	(0.007)	(0.015)	(0.007)
	Refrigerator in room					−0.044**	0.011	−0.044**	0.005
						(0.018)	(0.008)	(0.018)	(0.008)
Facilities	Free parking					0.035***	0.028***	0.038***	0.017***
						(0.013)	(0.005)	(0.013)	(0.006)
	Kitchenette					0.030**	−0.009	0.030**	−0.009
						(0.015)	(0.006)	(0.015)	(0.006)
	Bar/lounge					0.025**	−0.028***	0.024**	−0.020***
						(0.011)	(0.006)	(0.011)	(0.006)
	Self-service laundry					0.009	−0.010**	0.007	−0.003
						(0.012)	(0.004)	(0.012)	(0.004)
	Business center with Internet access					−0.007	0.021***	−0.007	0.019***
						(0.013)	(0.006)	(0.013)	(0.006)
	Conference facilities					−0.003	−0.003	−0.003	0.002
						(0.015)	(0.005)	(0.015)	(0.005)
	Meeting rooms					−0.034**	−0.009	−0.034**	−0.009
						(0.014)	(0.007)	(0.014)	(0.007)
	Banquet room					−0.038***	−0.009*	−0.039***	−0.010*
						(0.014)	(0.005)	(0.014)	(0.005)
	Casino and gambling					−0.104**	−0.017	−0.105**	−0.021
						(0.050)	(0.014)	(0.050)	(0.014)
Services	Babysitting					0.057***	0.012***	0.057***	0.010**
						(0.012)	(0.004)	(0.012)	(0.004)
	Drycleaning					0.034***	0.0005	0.034***	−0.002
						(0.011)	(0.005)	(0.011)	(0.005)
	Multilingual staff					0.015	−0.011**	0.015	−0.016***
						(0.012)	(0.005)	(0.012)	(0.005)
	Airport transportation					0.007	−0.005	0.006	−0.008*
						(0.012)	(0.005)	(0.012)	(0.005)
	Laundry service					−0.005	0.0004	−0.002	−0.010*
						(0.012)	(0.006)	(0.012)	(0.006)
	Children's activities (child/family-friendly)					−0.014	0.010*	−0.014	0.008
						(0.016)	(0.005)	(0.016)	(0.005)
	Free breakfast					−0.016	−0.009*	−0.013	−0.020***
						(0.011)	(0.005)	(0.011)	(0.005)
	Concierge					−0.022**	0.003	−0.023**	0.001
						(0.011)	(0.005)	(0.011)	(0.005)
	Room service					−0.020	0.003	−0.020	0.003

(continued)

Variables		Model 1		Model 2		Model 3		Model 4	
		Leisure trip	Business trip (differential effects)	Leisure trip	Business trip (differential effects)	Leisure trip	Business trip (differential effects)	Leisure trip	Business trip (differential effects)
						(0.013)	(0.006)	(0.013)	(0.006)
	Restaurant					−0.028**	0.017***	−0.027**	0.012*
						(0.013)	(0.007)	(0.013)	(0.007)
	Shuttle bus service					−0.041***	0.011***	−0.041***	0.004
						(0.011)	(0.004)	(0.011)	(0.004)
Internet connection	Free Internet					0.173***	0.037***	0.174***	0.030***
						(0.022)	(0.011)	(0.022)	(0.011)
	Free high-speed Internet (Wi-Fi)					0.084***	0.008	0.084***	0.014
						(0.018)	(0.009)	(0.018)	(0.009)
	Wi-Fi (extra charge)					0.034	0.011	0.037	0.005
						(0.033)	(0.010)	(0.033)	(0.010)
	Internet (extra charge)					−0.005	−0.023**	−0.009	−0.006
						(0.031)	(0.010)	(0.031)	(0.010)
	Public Wi-Fi					−0.014	−0.015***	−0.016	−0.006
						(0.013)	(0.006)	(0.013)	(0.006)
Recreation and relaxation	Ski-in/ski-out					0.137	0.092	0.144	0.092
						(0.208)	(0.075)	(0.208)	(0.075)
	Fitness center with gym/workout room					0.061***	0.011*	0.061***	0.012**
						(0.014)	(0.006)	(0.014)	(0.006)
	Spa					0.004	0.025***	0.006	0.018***
						(0.014)	(0.005)	(0.014)	(0.005)
	Tennis court					−0.006	−0.0003	−0.007	0.003
						(0.015)	(0.005)	(0.015)	(0.005)
	Golf course					0.001	−0.013	−0.003	−0.013
						(0.048)	(0.013)	(0.048)	(0.013)
	Hot tub					−0.024	0.005	−0.024	0.001
						(0.015)	(0.005)	(0.015)	(0.005)
	Pool					−0.053***	0.029***	−0.048***	0.010*
						(0.015)	(0.005)	(0.015)	(0.005)
	Beach					0.001	−0.074***	−0.066	−0.066***
						(0.048)	(0.022)	(0.054)	(0.022)
Support for people with disabilities	Wheelchair access					0.086***	−0.001	0.085***	0.003
						(0.011)	(0.005)	(0.011)	(0.005)
	Reduced-mobility rooms					0.017	−0.002	0.019	0.004
						(0.019)	(0.007)	(0.019)	(0.007)
Smoking policy	Nonsmoking hotel					0.067***	0.002	0.065***	0.014***
						(0.012)	(0.004)	(0.012)	(0.004)
	Nonsmoking rooms					−0.002	−0.020***	−0.004	−0.009
						(0.014)	(0.007)	(0.014)	(0.007)
	Smoking rooms available					−0.027	0.019**	−0.026	0.011
						(0.019)	(0.008)	(0.019)	(0.008)
Pet policy	Pets allowed (dog/pet-friendly)					−0.011	−0.0003	−0.012	0.008*
						(0.013)	(0.004)	(0.013)	(0.004)
Business trips to destination and from visitor's country	% of business trips to destination							−0.331**	−0.007
								(0.149)	(0.035)
	% of business trips from visitor's country							0.174	−0.042
								(0.166)	(0.055)
	% of business trips interaction							1.035***	−1.298***
								(0.169)	(0.244)
Economic development	GDP destination country							−0.054*	−0.015***
								(0.031)	(0.004)
	GDP visitor's country							−0.040***	−0.004
								(0.014)	(0.004)
	GDP interaction							0.003**	−0.001
								(0.001)	(0.002)
Culture	Power distance destination country							−0.002	−0.001***
								(0.002)	(0.0002)
	Power distance visitor's country							0.0005	0.00005
								(0.001)	(0.0002)
	Power distance interaction							−0.00001***	0.00002***
								(0.00000)	(0.00001)
	Individualism destination country							−0.004**	−0.001***
								(0.002)	(0.0002)
	Individualism visitor's country							0.002***	−0.0003**
								(0.001)	(0.0001)
	Individualism interaction							0.00001***	−0.00002***
								(0.00000)	(0.00000)
	Masculinity destination country							0.002	0.0002
								(0.001)	(0.0001)
	Masculinity visitor's country							−0.0001	−0.0002
								(0.001)	(0.0001)

(continued)

Variables		Model 1		Model 2		Model 3		Model 4	
		Leisure trip	Business trip	Leisure trip	Business trip	Leisure trip	Business trip	Leisure trip	Business trip
			(differential effects)		(differential effects)		(differential effects)		(differential effects)
	Masculinity interaction							−0.00001*** (0.00000)	0.00003*** (0.00000)
	Uncertainty avoidance destination country							0.002 (0.001)	−0.0002* (0.0001)
	Uncertainty avoidance visitor's country							0.002*** (0.0005)	0.001*** (0.0001)
	Uncertainty avoidance interaction							−0.00000*** (0.00000)	0.00000 (0.00000)
	Long-term orientation destination country							0.004*** (0.001)	−0.0005*** (0.0001)
	Long-term orientation visitor's country							−0.0002 (0.001)	−0.001*** (0.0001)
	Long-term orientation interaction							−0.00001*** (0.00000)	0.00002*** (0.00000)
	Indulgence destination country							−0.002 (0.001)	−0.001*** (0.0002)
	Indulgence visitor's country							0.001 (0.001)	−0.0001 (0.0002)
	Indulgence interaction							−0.00000 (0.00000)	0.00001 (0.00001)
Model information	CONSTANT	3.911*** (0.025)		3.927*** (0.025)		3.841*** (0.035)		3.893*** (0.037)	
	Observations	1,658,174		1,658,174		1,658,174		1,658,174	
	Log likelihood	−2,081,492		−2,080,139		−2,076,691		−2,076,160	
	Akaike information criterion (AIC)	4,163,002		4,160,316		4,153,657		4,152,693	
	Bayesian information criterion (BIC)	4,163,113		4,160,550		4,155,358		4,154,985	
	Pseudo R-square	0.46		0.45		0.46		0.46	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix D. Estimates of the random effects

Model	Groups (levels)	Random parameter	Variance	Std. Dev.	Correlations	
Model 1	Visitor's country: Reviewer	(Intercept)	0.11	0.33		
	Destination: Hotel	(Intercept)	0.28	0.53		
	Visitor's country	(Intercept)	0.01	0.10		
	Destination	(Intercept)	0.03	0.16		
	Residual		0.61	0.78		
Model 2	Visitor's country: Reviewer	(Intercept)	0.10	0.32		
	Destination: Hotel	(Intercept)	0.28	0.53		
	Visitor's country	(Intercept)	0.01	0.10		
	Destination	(Intercept)	0.03	0.16		
	Residual		0.61	0.78		
Model 3	Visitor's country: Reviewer	(Intercept)	0.11	0.32		
	Destination: Hotel	(Intercept)	0.14	0.37		
	Visitor's country	(Intercept)	0.01	0.10		
	Destination	(Intercept)	0.06	0.24		
		Hotel distance	0.00	0.05	−0.05	
		Air conditioning	0.01	0.07	−0.33	−0.34
	Residual		0.61	0.78		
Model 4	Visitor's country: Reviewer	(Intercept)	0.10	0.32		
	Destination: Hotel	(Intercept)	0.14	0.37		
	Visitor's country	(Intercept)	0.01	0.08		
	Destination	(Intercept)	0.03	0.18		
		Hotel distance	0.00	0.05	0.16	
		Air conditioning	0.01	0.08	−0.48	−0.37
	Residual		0.61	0.78		

Appendix E. Visualizations of the moderation effects of the business travel variable aggregated at different levels

Moderation effect of customer's travel profile (mean centered business trips as percentage of total trips on x axis, predicted overall rating score on y axis)
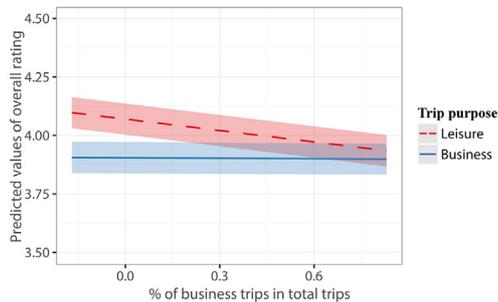

Moderation effect of customer's travel profile (mean centered business trips as percentage of total trips on x axis, predicted overall rating score on y axis)
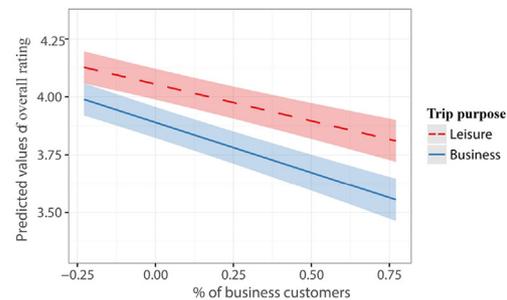
Moderation effect of destination tourism profile (mean centered business visits as percentage of total visits on x axis, predicted overall rating score on y axis)
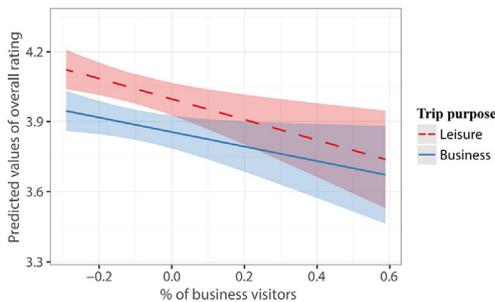
Moderation effect of visitor's country of origin tourism profile (mean centered business travels as percentage of total travels on x axis, predicted overall rating score on y axis)
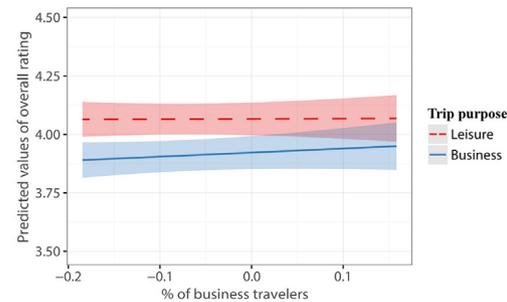
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Tijana Radojevic is an Associate Professor at the Faculty of Tourism and Hospitality Management, Singidunum University, Belgrade, Serbia. Her research focuses on marketing strategy in the hospitality industry.

Nemanja Stanisic is a Full Professor at the Faculty of Business Economics, Singidunum University, Belgrade, Serbia. His research expertise includes corporate finance and valuation.

Nenad Stanic is a Research Associate at the Faculty of Computer Science, Singidunum University, Belgrade, Serbia. His research interests include statistical computing, data mining, and web scraping.

Rob Davidson is a Senior Lecturer in Events Management at the University of Greenwich in London. His main areas of expertise are conferences and business events, and over the last ten years he has written widely on these themes.