Strategic Target Customers of Food and Beverage Offerings in Full-Service Hotels:

Outside-Hotel Customers

Abstract

A strategic focus by full-service hotels to attract outside-hotel (i.e., non-hotel) customers significantly improves their operating performance in both the food and beverage (F&B) department and the rooms department. In these aspects, a full-service hotel's unique gastronomic resources should be considered important attributes for attracting niche gourmet tourists and developing a strategic competitive advantage. Targeting outside-hotel customers can also be beneficial for generating additional cash flow and improving gastronomic brand awareness. Therefore, most full-service hotels should substantially redefine their F&B offerings and target customers, as focusing heavily on in-house guests is not an effective business strategy but rather a waste of costly resources. Full-service hotels should proactively expand their F&B offerings to local residents and compete with independent local F&B premises in various business aspects.

Keywords: gastronomic experience; hotel F&B offerings; in-house guests; outside-hotel customers; hotel operating performance

Introduction

Tourists develop a distinct memory about a destination while experiencing its environment, people, and cultures during their trips. Among various components, gastronomy plays an indispensable role in tourists' destination experience (Harrington & Ottenbacher, 2010; Hjalager & Richards, 2003; Kivela & Crotts, 2006; Richards, 2002). Food and beverage (F&B), including ingredients, menus, tableware, atmosphere, and service, provide a holistic but idiosyncratic cultural linkage with the destination even after traveling. An exceptional gastronomic experience has a powerful impact on the overall image of a destination and tends to remain in tourists' memories for long periods (Kivela & Crotts, 2006; Lai et al., 2020).

Although the importance of gastronomy has been widely discussed in the tourism field, the role of F&B offerings has not been fully emphasized in either the hotel industry or academia. Hotel restaurants have been underestimated by industry practitioners and researchers due to their original role (i.e., support for the rooms department) in hotels and relatively low operating performance or profitability (Hemmington & King, 2000; Mun et al., 2019; Promsivapallop et al., 2015). Some hotels have even eliminated or outsourced the functions of their in-house F&B operations to minimize their operating costs or to improve their efficiency (Espino-Rodríguez & Padrón-Robaina, 2004; Promsivapallop et al., 2015). The main reason that practitioners and researchers have ignored the strategic role of hotel restaurants is their own self-restricted vision of target markets and customer needs (e.g., Chester, 2017). Conventionally, the F&B services of hotels are mainly used by in-house guests, so the strategic emphasis of hotel F&B offerings has been passively concentrated on these guests (Karson & Murphy, 2013; Murphy et al., 2013; Siguaw & Enz, 1999). As a result, hotel restaurants have not prospectively expanded their target

customer segments into a broader base of outside-hotel (i.e., non-hotel) customers, such as local residents or transient travelers, who have different F&B service needs.

Interestingly, recent studies have recognized the contributions of hotels' F&B offerings, as the quality of F&B services not only affects the F&B department but also the rooms department and ultimately customers' entire hotel experience (Gordin et al., 2016; Kapera, 2015). A few studies have found that better F&B offerings through additional investment in F&B services can add value to the overall business performance of full-service hotels despite their already high operating costs (Chen & Chang, 2012; Lin et al., 2020; Mun et al., 2019; Yeh et al., 2012). From this perspective, a naïve or one-sided comparison of operating profitability between the rooms department and the F&B department may underestimate the strategic importance of F&B to the hotel industry.

In these circumstances, the traditional roles of hotel restaurants, bars, and target customers must be substantially redefined. In other words, mainly focusing on in-house guests is not an effective strategy for hotel restaurants. Instead, they must proactively expand their target customers, but the needs and activities of outside-hotel customers are significantly different from those of international in-house guests (Becken et al., 2003). Targeting outside-hotel customers can be beneficial for hotels in several aspects. First, it generates additional cash flow from the F&B department. Second, increased local and domestic customers may enhance hotel restaurants' gastronomic brand awareness, which can also have a positive impact on overall hotel awareness. In addition, this strategy also requires more flexible and complicated roles, concepts, and values of F&B offerings to satisfy both in-house and outside-hotel customers. Apparently, hotel guests are no longer a captive audience for hotel restaurants and are easily swayed into choosing alternative dining places near their accommodation. Therefore, hotel restaurants should

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adjust their roles in the market and expand their target customer segments, including local communities.

The strategic merits of targeting outside-hotel customers have not been academically or statistically demonstrated. Unfortunately, hotels have not separately recorded the F&B revenues from hotel guests and outside-hotel customers, so they cannot make strategic inferences using this aggregated F&B revenue information. This study develops a proxy variable for F&B revenue from outside-hotel customers and identifies its strategic impacts on the overall operating performance of full-service hotels. As one of hotels' diversification strategies, and this study assumes that F&B offerings provide competitive strengths to attract outside-hotel customers and have spillover effects on various aspects of business performance, such as room occupancy, room price (ADR), room revenue (RevPAR), and overall operating performance (GOPPAR). Therefore, the findings can provide insight into whether the increased awareness of hotel restaurants by outside-hotel customers or increased revenue from the expanded target customer segments would benefit property-level full-service hotels in terms of customer demand, room prices, and operating profitability. Furthermore, the results indicate the various strategic roles that F&B offerings can play for full-service hotels at different levels (i.e., luxury, upper-upscale, and upscale).

Literature Review

The Changing Role of Hotel F&B Services

Previously, hotel F&B was viewed as an add-on amenity for the convenience of in-house guests rather than a means of generating F&B revenue and ultimately turning hotel profits (Hospitality-on, 2018). Typically, hotel F&B offerings mainly targeted captive in-house guests

seeking convenient dining options without considering the various external restaurant options located in the given hotel's unfamiliar surrounding area (Murphy, Semrad, & Yost, 2013). However, hotel F&B has gained attention from the industry, with many companies foreseeing its potential to elevate hotels' brand image and long-term profitability. In fact, STR's reports on the increases in annual U.S. hotel F&B revenues per occupied room are consistent with the finding of Mun et al. (2019) that dining has become imperative for the success of a modern hotel business. In the U.S. alone, consumers' hotel F&B spending increased by 4.9% and totaled $48.7 billion in 2017, with an annual average growth rate of 4.5% from 2010 (Simon, 2018). More recently, the STR report showed a 2.7% increase in hotel F&B revenue per occupied room from $106.92 in 2017 to $112.67 in 2018 (STR, 2019). With the F&B sales and profit margin increasing, the F&B revenue accounted for nearly 25% of total hotel revenues in 2017 (Social Tables, 2018).

However, not all hotel F&B offerings contribute to the increase in F&B department revenues. According to an industry survey, F&B revenue from in-house guests (e.g., minibar and in-room dining) is decreasing, whereas F&B categories targeting outside-hotel guests (e.g., lounges and catering) are on the rise (Mandelbaum, 2017). Especially, catering and banquet services have become a major source of revenue, accounting for approximately 60% of F&B revenue at full-service hotel operations, such as luxury, upper-upscale, and upscale hotels (Social Tables, 2018). These trends are supported by Murphy et al. (2013), who argued that targeting in-house guests is not sufficient to increase F&B revenues and overall hotel profitability. Hence, they emphasized attracting a range of customer groups other than in-house guests for the success of hotel F&B. According to a recent industry report, the positive experiences of local outside-hotel guests at a hotel F&B facility may influence their future booking decisions with the same

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hotel brand in foreign destinations (Sevenrooms, 2019). These findings imply that maintaining close engagement with the local community can go beyond F&B revenue growth and influence overall hotel brand reputation for the company's long-term profitability (Lee, Lee, Chua, & Han, 2019; Murphy et al., 2013).

Based on this perspective, the industry's marketing arm is seeking strategies to redesign F&B venues. The recent trend in hotel F&B has been to diversify F&B offerings to broaden customer clientele while maintaining a high standard of services and products (Gupta, 2018). For example, some of the world's biggest hotel groups, such as Marriott, AccorHotels, and Hilton, have transformed their hotel F&B to provide customers with unique holistic experiences, which differ greatly from traditional hotel F&B staples. The president of Marriott International stated, "I do think the perception of the company and where we are, from an F&B standpoint is five years in the past," reflecting that the success of hotel F&B can improve the company's brand reputation (Ting, 2019). In an attempt to connect to customers other than in-house guests, Marriott's F&B department has adopted more informal and casual F&B models, such as "Grab & Go" meals, self-service, and kiosks (Hoydysh, 2019). Furthermore, many Marriott hotels have reconstructed their lobby areas to create a more inviting and sociable atmosphere (Hospitality-on, 2018). The AccorHotels F&B department has announced its mission to satisfy its customers' taste buds with authentic and simple foods and entertain its customers to make their F&B essential venues for both locals and travelers (Accor, 2020). Many hotel companies have acknowledged the need for significant investment in dining options to renovate dining space or infuse the local atmosphere. To do so, hotel companies must also partner with local vendors and breweries to appeal to both in-house guests and outside-hotel customers (Hess, 2020).

Hotel F&B as a Diversification Strategy

Based on the industrial trends and findings revealed by previous studies, we suggest that hotel F&B should be regarded as a critical diversification strategy that can create competitive advantages. Diversification, a central topic for strategic management (Rumelt, 1982; Sambharya, 1995), is defined as "the degree to which an organization expands its pool of resources to discover their varied uses in incomplete markets" (Ng, 2007, p. 1484). Diversification is the strategic decision to transfer current resources to potentially profitable new markets or company activities (Chatterjee & Wernerfelt, 1991). As market maturity and technological advances intensify competition, diversification provides companies with competitive advantages as they expand into highly profitable activities and reduce the risks from excessive competition (Stern & Henderson, 2004). Effective use of existing resources for new businesses can create operational and financial synergies, whereby the profit from the sum of diversified business activities is greater than the profit from the same activities if they were undiversified (Picone & Dagnino, 2016).

Numerous hotel studies have examined the effectiveness of diversification on firm performance (e.g., Lee & Jang, 2007; Ramanathan, Ramanathan, & Zhang, 2016; Tang & Jang, 2010; Zheng & Tsai, 2019). However, they have mainly focused on diversification strategies related to rooms, which are hotels' core resources. Hotel companies have diversified their business activities by providing hotel rooms with different levels of quality and prices (hotel brands) and by expanding in other locations using the same quality of rooms (international diversification). These types of diversification allow hotels to achieve economies of scale that reduce uncertainties and accelerate business growth; however, their target customers are still limited to in-house guests (Mun & Woo, 2021; Park & Jang, 2012).

Carman and Langeard (1980) suggested the merits of peripheral resources, such as restaurants or bars, which had been regarded as supplementary services and operated independently of core room-related services. This is supported by hotel companies' recent use of their current resources (e.g., F&B) to broaden their target customer groups (i.e., outside-hotel customers). They have sought to convert supplementary resources into core resources to attract neglected customers and compete with less familiar competitors in the industry such as local restaurants and catering companies. This new type of diversification seems to be driven by market maturity and high competition in terms of rooms. In contrast to rooms, for which hotels must follow strict operating procedures, hotel F&B is relatively flexible to service and product adaptation. Thus, hotels can differentiate their services from those of hotel competitors and achieve competitive advantages by providing diverse and better-quality F&B services. Furthermore, as argued above, advanced hotel F&B services naturally attract different clienteles, specifically outside-hotel customers, and can generate substantial revenues. Based on their experiences with in-house guests, hotels deliver F&B that local restaurants cannot provide to outside-hotel customers, such as exceptional food with experiential and hedonic value, personalized service, and premium physical environments (e.g., Han & Hyun, 2017; Lee et al., 2019; Wu & Liang, 2009).

Studies have highlighted that hotel F&B is an important revenue generator for hotels (Chen & Chang, 2012; Mun et al., 2021), but the influence of the main customers of hotel F&B (i.e., outside-hotel customers) on hotels is still unknown. With their strategic focus on rooms, previous studies and the industry have centered on in-house guests, focusing on their reservation activities and booking patterns and exploring how hotels can enhance their performance based on in-house guests' information. However, hotel F&B, which has not been considered a major

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diversification strategy by researchers, has recently attracted industry attention. There is currently a lack of measures that reflect the depth or degree of hotel F&B or estimate the impact of outside-hotel customers. To fill this research gap and provide better strategies for hotel F&B, this study proposed a new measurement to estimate the F&B revenue from outside-hotel customers. As a proxy for F&B revenue from outside-hotel customers, this study used the GEE model residuals for room occupancy as an independent variable and F&B revenue as a dependent variable.

Methodology

Sample Data

Only full-service hotels in the U.S. were examined, including luxury, upper-upscale, and upscale hotels in New York (NY), California (CA), Florida (FL), Illinois (IL), and Texas (TX). On average, the proportion of the international tourists who visited those five states was 83.31% of the total overseas visitors from 2008 to 2017, and the figure was consistently over 80%. The proportion of the international tourists in other states was less than 5% of the total overseas visitors except for Hawaii (about 8% to 9%). Thus, this study included those five states, which represented the most popular tourist destinations for the analysis. Ten years' of property-level hotel performance data (from 2008 to 2017) from STR reports were examined to identify the relationship between the F&B revenue from outside-hotel customers and overall hotel performance. STR covered more than 67% of branded hotel rooms in North America and provides detailed property-level hotel operating performance data. In other words, STR provided the most appropriate financial database to identify the strategic impact of hotel F&B offerings on complicated hotel operating performance. It is because STR collects the most significant number

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of property-level daily, monthly, and yearly hotel performance data (STR currently collects data for more than 67,000 hotels around the world). Besides, state-specific data from the United States Census Bureau, including state total revenue and state average monthly employment, were linked to the hotel performance data to control for the states' economic effects on hotel performance. The total sample included 464 hotels with 4,386 observations: 75 luxury hotels with 721 observations, 230 upper-upscale hotels with 2,176 observations, 161 upscale hotels with 1,319 observations, and 74 other hotels with 170 observations (a few hotels changed their classes over the years).

Variables

The dependent variables used included (a) occupancy rate (log of occupancy [LogOccupancy]), (b) average daily rate (log of average daily rate [LogADR]), (c) revenue per available room (log of revenue per available room [LogRevPAR]), (d) gross operating profit (GOP) per available room (log of GOP per available room [LogGOPPAR]), (e) GOP over total revenue, and (f) earnings before interest, tax, depreciation, and amortization (EBITDA) over total revenue. The natural log transformation was used for the first four dependent variables to decrease the variability of the data and to make them conform more closely to the normal distribution. The main independent variable (OutLogF&BRevPAR) was the difference between the actual F&B revenue per available room (F&B RevPAR) and the predicted value of F&B RevPAR from the generalized estimating equations (GEE) model after the log transformation (LogF&BRevPAR). Here, the dependent variable of the GEE model was LogF&BRevPAR and the independent variable was LogOccupancy with state-specific and year dummy control variables (refer to Model 1). Thus, OutLogF&BRevPAR represented the levels of F&B revenue

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from outside-hotel customers after considering hotel's occupancy rate. Two additional models (Models 3 and 4) in each hotel class (luxury, upper-upscale, and upscale hotels, separately) were examined to explain the outcomes. The following control variables were used to control firm- and state-specific factors: hotel location (1 = urban, 2 = suburban, 3 = airport, 4 = interstate/motorway, and 5 = resort, interstate, and small metro/town), hotel age (years of operation), hotel size (i.e., based on the number of rooms; 5 = the largest hotels in terms of room number, 1 = the smallest hotels in terms of room number), state revenue (log of state total revenue [LogStateRevenue]), state average monthly employment (log of state average monthly employment [LogStateAverageMonthlyEmployment]), and a year dummy. In Model 3, the change in the F&B cost ratio (F&B cost over F&B revenue) was added to examine the moderation effect of F&B prices relative to F&B cost.

Statistical Models

To reach a robust conclusion, three models were compared: the ordinary least squares (OLS) model, the random-effects (RE) model, and the GEE model. The RE and GEE models have been widely used for longitudinal data with repeated observations. In this study, the hotel-specific time-invariant variables, such as hotel location, age, and size, were the important variables, making the RE model more appropriate than the fixed-effects model (i.e., Baltagi, 2008; Greene, 2008; Plümper & Troeger, 2007; Woodridge, 2002). However, the RE model could not eliminate the potential bias from missing time-invariant variables in the model. To overcome this issue, a cluster-adjusted robust standard error was used for all of the models and the results of OLS and RE models were compared with the GEE model results. The GEE model was first developed by Wedderburn and Nelder in the mid-1970s as an extension of the

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generalized linear model (Hardin & Hilbe, 2012). It provides more efficient and unbiased

regression estimates for non-normal response variables even if the models are unspecified

(Ballinger, 2004; Liang & Zeger, 1986).

First, the GEE model was used to estimate the proxy for the F&B revenue per available

room from outside-hotel customers (Model 1). If a hotel's actual F&B revenue (y) was larger

than the GEE model predicted F&B revenue ($\hat{y}$) (here, $\hat{y}$ represented the relationship between

the occupancy and F&B revenue), the hotel had larger F&B revenue from outside-hotel

customers than the industry average (a positive residual) and vice versa. Second, the OLS, RE,

and GEE models were run using the difference between a hotel's actual F&B revenue (y) and its

predicted F&B revenue ($\hat{y}$) as an independent variable. In addition, the same GEE model was

analyzed and compared after the hotels were divided by class (luxury, upper-upscale, and

upscale) to eliminate the effect of hotel quality on the model. Furthermore, a moderating term of

F&B revenue from outside-hotel customers and the change in the F&B cost ratio

(OutLogF&BRevPAR*ΔF&B Cost Ratio) was added to the GEE model for each hotel class to

examine the effects of F&B prices on F&B revenue (as shown in Model 3). Finally, the

relationship between the amounts of F&B revenue from outside-hotel customers and hotel firms'

operating profitability (GOP and EBITDA) was measured separately for each hotel class (luxury,

upper-upscale, and upscale hotels) in Model 4.

Model 1: Proxy for the F&B Revenue Per Available Room from Outside-Hotel Customers
(OutLogF&BRevPAR)

$LogF\&BRevPAR_{it} = \beta_0 + \beta_1 * LogOccupancy_{it} + \beta_2 * LogStateRevenu_{it} +$

$\beta_3 * LogStateMonthlyEmployment_{it} + \beta_4 * Year_t + \gamma + \varepsilon_{it}$

From Model 1, the proxy for the revenue (after log transformation) from outside-hotel guests is the difference between a hotel's actual F&B revenue (y) and its predicted F&B revenue ($\hat{y}$) based on the GEE model ($y - \hat{y}$). The proxy for the F&B revenue (after log transformation) per available room from outside-hotel customers (OutLogF&BRevPAR) was calculated separately for the luxury, upper-upscale, and upscale hotel sub-groups.

Model 2: Effect of the F&B Revenue Per Available Room from Outside-Hotel Customers on Occupancy, ADR, RevPAR, and GOPPAR

$Y_{it} = \beta_0 + \beta_1 *$ OutLogF&BRevPAR $_{it} + (\beta_2*Class_i) + \beta_2*Location_i + \beta_3*$Year of Operation$_{it} + \beta_4*$Size$_i + \beta_5*$ LogStateRevenu$_{it} + \beta_6*$ LogStateMonthlyEmployment$_{it} + \beta_7*$Year$_t + \gamma + \varepsilon_{it}$
where Y is LogOccupancy, LogADR, LogRevPAR, and LogGOPPAR. The model was examined separately for the luxury, upper-upscale, and upscale hotel sub-groups.

Model 3: Moderating Effect of F&B Cost on the Relationship Between the F&B Revenue Per Available Room from Outside-Hotel Customers and Hotel Performance

$Y_{it} = \beta_0 + \beta_1 *$ OutLogF&BRevPAR $_{it} + \beta_2*($OutLogF&BRevPAR$*\Delta$F&B Cost Ratio$)_{it} + \beta_3*\Delta$F&B Cost Ratio$_{it} + \beta_4*$Location$_i + \beta_5*$Year of Operation$_{it} + \beta_6*$ Size$_i + \beta_7*$ LogStateRevenu$_{it} + \beta_8*$ LogStateMonthlyEmployment$_{it} + \beta_9*$Year$_t + \gamma + \varepsilon_{it}$
where Y is LogOccupancy, LogADR, LogRevPAR, and LogGOPPAR. The model was examined separately for the luxury, upper-upscale, and upscale hotel sub-groups.

Model 4: Effect of the F&B Revenue Per Available Room from Outside-Hotel Customers on

Operating Profitability

$Y_{it} = \beta_0 + \beta_1* \text{OutLogF\&BRevPAR}_{it} + \beta_2*\text{Location}_i + \beta_3*\text{Year of Operation}_{it} + \beta_4* \text{Size}_i + \beta_5*$

$\text{LogStateRevenu}_{it} + \beta_6* \text{LogStateMonthlyEmployment}_{it} + \beta_7*\text{Year}_t + \gamma + \varepsilon_{it}$

where Y is the GOP over total revenue and EBITDA over total revenue. The model was

examined separately for the luxury, upper-upscale, and upscale hotel sub-groups.

Results

Descriptive Information

To estimate F&B revenue from outside-hotel customers, each hotel's actual F&B revenue

(y) was subtracted from its predicted F&B revenue ($\hat{y}$) based on the GEE model (Model 1) after

controlling for state revenue, state average monthly employment, and the year effect constant in

each hotel class (i.e., luxury, upper-upscale, and upscale). As shown in Table 1, the occupancy

rate had a significant positive relationship with hotel F&B revenue (0.7082, $p < .01$ for luxury

hotels; 0.7310, $p < .01$ for upper-upscale hotels; and 1.1936, $p < .01$ for upscale hotels). The

results indicate that hotels' F&B revenue depends significantly on the number of in-house guests

(Karson & Murphy, 2013; Murphy et al., 2013). In other words, on average, a 1% increase in

room occupancy rate would increase F&B revenue by approximately 0.71% in luxury hotels,

0.73% in upper-upscale hotels, and 1.19% in upscale hotels. It is clear that some of the hotels

had high F&B revenue relative to room occupancy, whereas others had low F&B revenue

relative to room occupancy (refer to Figure 1). If the F&B revenue of a hotel was higher than the

average F&B revenue of all hotels, the hotel had greater F&B revenue for its room occupancy

than the industry average and vice versa. In this sense, the difference between a hotel's actual

F&B revenue (y) and its predicted F&B revenue ($\hat{y}$) can serve as a proxy for the F&B revenue from outside-hotel customers.

(Insert Table 1)

(Insert Figure 1)

The descriptive statistics (refer to Table 2) show that the hotels with a high F&B RevPAR generally had significantly lower occupancy (72.66% vs. 73.75%) but substantially higher ADR ($212.63 vs. $130.79), RevPAR ($156.28 vs. $98.33), GOPPAR ($82.27 vs. $48.22), and EBITDAPAR ($52.86 vs. $31.86) than the hotels with low F&B RevPAR. Furthermore, the hotels with high F&B RevPAR showed significantly higher ratios of F&B revenue over room revenue (56.81% vs. 13.29%) and F&B revenue over total revenue (34.64% vs. 11.25%) than their counterparts. Overall, the hotels with high F&B RevPAR were higher class hotels with longer operation periods and larger hotel sizes than the hotels with low F&B RevPAR. The separations clearly presented the discrepancy in the F&B performance of the hotels with dissimilar strategic emphasis on F&B. However, the comparisons had statistical limitations because they were not made within each hotel class separately.

(Insert Table 2)

Robustness of the Proxy Variable for the F&B Revenue from Outside-Hotel Customers

The mean F&B RevPAR of the positive Out F&B RevPAR hotels was $84.89, with a maximum of $512.38, whereas the mean F&B RevPAR of the negative Out F&B RevPAR hotels was $13.02 with a maximum of $43.55. Thus, the mean F&B RevPAR of the positive Out F&B RevPAR hotels was about 6.5 times larger than the mean F&B RevPAR of the negative Out F&B RevPAR hotels. Out F&B RevPAR was measured separately for each hotel class, and this substantial difference (6.5 times) in F&B RevPAR was more likely to be caused by F&B revenue

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from outside-hotel customers than by revenue from in-house guests. Furthermore, as shown in Figure 2, urban and resort areas had greater numbers and higher proportions of positive Out F&B RevPAR hotels than negative Out F&B RevPAR hotels. In contrast, the numbers and proportions of negative Out F&B RevPAR hotels were not substantially different from those of positive Out F&B RevPAR hotels in suburban, airport, and small metro/town areas. Furthermore, there were more negative Out F&B RevPAR hotels than positive Out F&B RevPAR hotels in suburban and airport areas, and this pattern was consistent across all hotel classes. In other words, the F&B revenue of hotels that were easily accessible to local communities or to outside-hotel guests tended to be much higher than that of other hotels. Non-hotel guests and local residents might enjoy hotel restaurants in urban and resort areas while attending conferences, meetings, or individual events, whereas not many outside-hotel customers go to hotels in suburban and airport areas to dine out.

(Insert Figure 2)

Furthermore, as shown in Table 3, the positive Out F&B RevPAR hotels outperformed the negative Out F&B RevPAR hotels in terms of most F&B revenue sources across all three hotel classes, although the occupancy rates of luxury and upper-upscale hotels were lower. The banquet food revenue per available room (BanquetFoodRevPAR) and other F&B revenue per available room (OtherF&BRevPAR) were substantially higher for the positive Out F&B RevPAR hotels than for the negative Out F&B RevPAR hotels for all three hotel classes. The difference in BanquetFoodRevPAR between the positive and negative Out F&B RevPAR hotels was $33.14 for luxury hotels, $21.71 for upper-upscale hotels, and $17.85 for upscale hotels. The difference in OtherF&BRevPAR between the positive and negative Out F&B RevPAR hotels was $19.59 for luxury hotels, $9.94 for upper-upscale hotels, and $7.44 for upscale hotels. In

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combination with the difference in F&B revenue from hotel restaurant venues (Restaurant FoodRevPAR), these gaps contributed to a significant performance disparity in overall F&B revenue between the positive and negative Out F&B RevPAR hotels. The results consistently confirmed that outside-hotel customers had a huge impact on F&B revenues. The results thus support the reliability of Out F&B RevPAR as a proxy variable for F&B revenue from outside-hotel customers because, as not in-house guests, they are the main target customers of banquet and other F&B offerings.

(Insert Table 3)

Regression Analysis

As shown in Table 4, the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) did not have a significant effect on room occupancy in either the RE (-0.0075, $p > .1$) or GEE (-0.0070, $p > .1$) models. However, it had a significantly positive impact on ADR (0.1696, $p < .01$ in OLS; 0.1359, $p < .01$ in RE; and 0.1108, $p < .01$ in GEE), RevPAR (0.1630, $p < .01$ in OLS; 0.1444, $p < .01$ in RE; and 0.1266, $p < .01$ in GEE), and GOPPAR (0.1763, $p < .01$ in OLS; 0.2290, $p < .01$ in RE; and 0.2290, $p < .01$ in GEE) in all three models. The results indicate that the strategic emphasis of full-service hotels on attracting outside-hotel customers to dine at their F&B facilities may improve the operating performance of their room department and their overall operating profitability.

Among the control variables, hotel class had a significantly positive relationship with GOPPAR in all three models (0.1993, $p < .01$ in OLS; 0.0630, $p < .01$ in RE; and 0.0626, $p < .01$ in GEE). Additionally, state revenue and state average monthly employment had significantly positive relationships with RevPAR (state revenue: 0.1917, $p < .01$ in OLS; 0.4555, $p < .01$ in

RE; and 0.5497, $p < .01$ in GEE; state average monthly employment: 1.1745, $p < .01$ in OLS; 0.4560, $p < .01$ in RE; and 0.2808, $p < .01$ in GEE) and GOPPAR (state revenue: 0.1931, $p < .01$ in OLS; 0.4424, $p < .01$ in RE; and 0.4456, $p < .01$ in GEE; state average monthly employment: 1.1188, $p < .01$ in OLS; 0.4995, $p < .01$ in RE; and 0.4934, $p < .01$ in GEE) in all three models.

(Insert Table 4)

For a more accurate analysis, the relationship between the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) and hotels' operating performance (occupancy, ADR, RevPAR, and GOPPAR) was examined separately by hotel class (refer to Table 5). Consistent with the results for all of the hotels, the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) did not significantly affect room occupancy. However, it demonstrated a significantly positive relationship with ADR (0.1982, $p < .01$ in the luxury hotels; 0.1037, $p < .01$ in the upper-upscale hotels; and 0.0699, $p < .01$ in the upscale hotels), RevPAR (0.2184, $p < .01$ in the luxury hotels; 0.1074, $p < .01$ in the upper-upscale hotels; and 0.0651, $p < .01$ in the upscale hotels), and GOPPAR (0.4348, $p < .01$ in the luxury hotels; 0.3086, $p < .01$ in the upper-upscale hotels; and 0.1154, $p < .01$ in the upscale hotels) in all three hotel classes. Its positive impact was consistently larger in the luxury hotels than in the upper-upscale hotels and upscale hotels for all three operating performance measures (i.e., ADR, RevPAR, and GOPPAR). Regarding the control variables, only state revenue had a constantly positive effect on hotel performance in all three hotel classes.

(Insert Table 5)

Despite the consistent inferences, the relationship between the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) and the hotels' operating performance (occupancy, ADR, RevPAR, and GOPPAR) could be significantly altered

by price changes in hotels' F&B offerings. To verify the moderating effects of F&B offerings, the interaction term (OutLogF&BRevPAR*ΔF&B Cost Ratio) of the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) and the change in the F&B cost ratio was included in the models. As shown in Table 6, the relationship between the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) and the hotels' operating performance (occupancy, ADR, RevPAR, and GOPPAR) did not show a significant moderating effect. In other words, the insignificant effect of the interaction term on hotels' operating performance confirms that the positive effect of attracting outside-hotel customers to dine at their F&B facilities on hotels' operating performance was neither caused by increasing nor decreasing the prices of F&B offerings. Therefore, a high OutLogF&BRevPAR indicated the overperformance of F&B revenue from outside-hotel customers and a low OutLogF&BRevPAR indicated the underperformance of F&B revenue from outside-hotel customers and even in-house guests.

(Insert Table 6)

The last model (Model 4) was developed to certify the positive impact of the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) on the hotels' operating performance regardless of the prices of the F&B offerings. It was required to avoid any potential price effects on hotel performance. For example, if a hotel had higher room and F&B prices, their F&B RevPAR, ADR, RevPAR, and GOPPAR were more likely to be higher than those of their counterparts, even if they were within the same class. However, under the same conditions, their operating profitability would not necessarily be higher than that of their counterparts if hotels increase their expenses to improve the quality of F&B offerings. To consider this potential limitation, two operating profitability measurements (GOP over total

revenue and EBITDA over total revenue to reflect both revenue and cost changes) were examined as dependent variables in Model 4. However, if a hotel increased the F&B revenue substantially more from outside hotel customers, its operating profitability ratio would be significantly improved due to the diminished proportion of fixed costs. As presented in Table 7, the proxy for the F&B revenue per available room from outside-hotel customers (OutLogF&BRevPAR) had a significantly positive impact on the hotels' GOP (0.0950, $p < .01$ in the luxury hotels; 0.1095, $p < .01$ in the upper-upscale hotels; and 0.0273, $p < .1$ in the upscale hotels) and EBITDA (0.0925, $p < .01$ in the luxury hotels; 0.0910, $p < .01$ in the upper-upscale hotels; and 0.0276, $p < .1$ in the upscale hotels). Interestingly, its effect was the lowest in the upscale hotels in both of the operating profitability measurements.

(Insert Table 7)

Conclusions and Discussions

Summary of Findings

Overall, the results of this study supported that hotel F&B services are sufficiently competitive for hotels to break out of their original roles and to attract outside-hotel customers. The empirical evidence further indicated that attracting outside-hotel customers to hotels' F&B facilities has a significant positive effect on operating performance (RevPAR and GOPPAR), which is greater in luxury hotels than in upper-upscale and upscale hotels. The findings represent the effectiveness of hotel F&B services as diversification strategies (Chatterjee & Wernerfelt, 1991; Mun et al., 2019; Stern & Handerson, 2004). Furthermore, lowering or increasing the price of F&B offerings does not significantly increase or decrease hotels' room revenue (RevPAR) or overall operating profitability (GOPPAR). In other words, the pricing practices of hotel F&B

may not be the most critical factor in attracting or losing in-house and outside-hotel customers to hotels' F&B facilities. Increasing (or decreasing) the price of F&B offerings would decrease (or increase) the quantity of F&B sales and would have an insignificant impact on hotel firms' overall operating performance (i.e., the revenue and operating profits would be similar).

This study also found a positive relationship between F&B revenue from outside-hotel customers and operating profitability (GOP over total revenue and EBITDA over total revenue). Therefore, increasing the number of outside-hotel customers could substantially improve such firms' operating performance by reducing the proportion of fixed costs in F&B sales. This finding supports the importance of attracting outside-hotel customers to increase the hotel's overall operating profitability. However, interestingly, the significant positive impacts of enhanced F&B services on hotel performance in luxury hotels have been identified only in Asia (Mun et al., 2020) but not in the U.S. (Mun et al., 2019) in previous studies. The discrepancy indicates that more investment in F&B services does not spontaneously attract more outside-hotel customers to hotels' F&B facilities (Mandelbaum, 2017). For that reason, focusing mainly on in-house customers without attracting outside-hotel customers may not be an effective business strategy for some luxury hotels. Instead, to fully enjoy the benefits of diversification strategies, hotels need to broaden their target customers to outside-hotel customers (Lee et al., 2019; Murphy et al., 2013; Picone & Dagnino, 2016).

Last, the non-significant moderating effect of the F&B cost ratio and the positive impact of OutLogF&BRevPAR on operating performance justify the validity of using OutLogF&BRevPAR as a proxy variable for F&B revenue from outside-hotel customers. These findings consistently indicate that the superior operating performance of the positive Out F&B

RevPAR hotels relative to the negative Out F&B RevPAR hotels is not driven by the hotel class, location, or price of the menu but mainly by F&B sales to outside-hotel customers.

Theoretical Implications

Despite hotel firms' interests and investments in F&B, hotels' F&B outlets and their major consumers, outside-hotel guests, have been overlooked in previous studies. This study fills the gap in the literature by measuring the operating values of hotel F&B from outside-hotel consumers and testing their impacts on hotel performance. Methodologically, this study suggests a new measurement that can be used as a proxy variable for F&B revenue from outside-hotel customers: OutLogF&BRevPAR. The GEE model residuals for room occupancy were used as an independent variable and F&B revenue was used as a dependent variable to proxy for F&B revenue from outside-hotel customers. The strong relationship between the two variables demonstrates hotels' substantial reliance on in-house guests for their F&B sales. Other unexplained impacts concern the difference between the actual F&B revenue (y) and the predicted F&B revenue (y′). In addition, the moderating terms of the F&B cost ratio and the operating profitability ratios (GOP over total revenue and EBITDA over total revenue) reduce the potential price change effects on F&B revenue. Therefore, this study has methodological rigor in quantifying and proving the benefits of hotels' strategic emphasis on attracting outside-hotel customers to their F&B facilities.

This study also provides new theoretical insights into hotel strategic management studies. Our approach differs from previous studies in that this study considers hotel F&B as a diversification strategy that plays a critical role in improving hotels' financial performance. From the resource-based view, F&B offerings are a critical resource for hotels, as was robustly

supported by the non-significant impact of raising F&B costs on room division performance. It is also well reflected in the current COVID-19 situation, as many hotels that have rapidly adjusted their F&B offerings have survived and competed well (Williams, 2020). These findings strongly indicate that future hotel strategic and revenue management studies should further develop F&B services-related measurements to evaluate the impacts of F&B services on hotels.

Practical Implications

The findings consistently indicate a significantly positive relationship between the F&B revenue from outside-hotel customers and the operational performance of full-service hotels. Therefore, hotels should proactively consider how to promote their restaurants and bars to the local market to attract more outside-hotel customers. Developing strategic F&B offerings for outside-hotel customers would be an impactful and trustworthy way for them to invest in their sustainable growth.

The hotel's F&B revenue solely from in-hotel guests fluctuates greatly according to room occupancy and often decreases significantly in off-peak periods (Karson & Murphy, 2013). Targeting outside-hotel customers is a valuable diversification strategy for hotels because it reduces the negative seasonality impact, and it is also beneficial for local consumers. Despite the important role of hotel F&B offerings, hotel restaurants and bars have not frequently attracted local residents for leisure or special meetings. The lack of local involvement and the high prices of F&B offerings, along with rather hard-to-reach environments, hinder their accessibility. Thus, this study recommends that hotels develop various F&B-related services that better engage local communities in various aspects, such as hosting group conferences, charity events, and holiday parties, as well as volunteering for local projects. In particular, luxury hotels must develop more

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innovative plans to attract local customers and engage local businesses (e.g., Accor's Potel & Chabot), given the greater positive effect of F&B revenue on luxury hotels' performance than on the performance of upper-upscale and upscale hotels.

When a hotel improves its F&B reputation among local residents and communities, the improved local embeddedness can enhance the hotel's overall value and image. Because of word of mouth, locals can be expected to have a positive image of the hotels to which the hotel restaurants belong and to recommend these hotels more to both domestic and international tourists. This expectation is supported by the result that hotels attracting outside-hotel customers improved the performance of their room department. The enhanced image by hotels' F&B allows hotels to sell their rooms for higher prices without losing customer demand, which ultimately leads to higher overall operating profitability compared with their competitors. Considering the effects of outside-hotel customers on hotel performance, hotel firms should treat outside-hotel guests as their main target and develop management practices related to them. For example, hotels could develop a system that tracks the information and purchases of outside-hotel customers and records detailed measurements related to hotel F&B activities (e.g., F&B costs and sales from outside-hotel customers).

Reference

Accor. (2020). Food & beverage. Retreived from https://group.accor.com/en/innovation/travels-and-lifestyle/food-and-beverage

Ballinger, G. A. (2004). Using generalized estimating equations for longitudinal data analysis. Organizational research methods, 7(2), 127-150.

Baltagi, B. (2008). Econometric analysis of panel data. John Wiley & Sons.

Becken, S., Simmons, D. G., & Frampton, C. (2003). Energy use associated with different travel choices. Tourism Management, 24(3), 267-277.

Bennett, R. D. (2011). Operational approaches in New Zealand & Singaporean Hotel Food & Beverage Departments: expanding the customer base beyond in-house (Doctoral dissertation, Auckland University of Technology).

Boyne, S., Williams, F., & Hall, D. (2003). On the trail of regional success: Tourism, food production and the Isle of Arran Taste Trail. In Tourism and gastronomy (pp. 105-128). Routledge.

Capar, N., & Kotabe, M. (2003). The relationship between international diversification and performance in service firms. Journal of International Business Studies, 34(4), 345-355.

Carman, J. M., & Langeard, E. (1980). Growth strategies for service firms. Strategic Management Journal, 1(1), 7-22.

Chatterjee, S., & Wernerfelt, B. (1991). The link between resources and type of diversification: Theory and evidence. Strategic Management Journal, 12(1), 33-48.

Chesters, C. (2017,May21). The business: Redefining accor's F&B strategy. Retrieved from http://www.hotelnewsme.com/catering-news-me/business-redefining-accors-fb-strategy/.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. Strategic

management journal, 21(10-11), 1105-1121.

Enz, C. A., & Siguaw, J. A. (1999). Best hotel environmental practices. Cornell Hotel and

Restaurant Administration Quarterly, 40(5), 72-77.

Espino-Rodríguez, T. F., & Padrón-Robaina, V. (2004). Outsourcing and its impact on

operational objectives and performance: a study of hotels in the Canary Islands.

International Journal of Hospitality Management, 23(3), 287-306.

Fox, R. (2007). Reinventing the gastronomic identity of Croatian tourist destinations.

International journal of hospitality management, 26(3), 546-559.

Greene, W. H. (2008). The econometric approach to efficiency analysis. The measurement of

productive efficiency and productivity growth, 1(1), 92-250.

Gordin, V., Trabskaya, J., & Zelenskaya, E. (2016). The role of hotel restaurants in gastronomic

place branding. International Journal of Culture, Tourism and Hospitality Research.

Gupta, R. (2018). F&B options in hotels – It's not just another place to eat. Retrieved from

https://www.4hoteliers.com/features/article/11258

Han, H., & Hyun, S. S. (2017). Impact of hotel-restaurant image and quality of physical-

environment, service, and food on satisfaction and intention. International Journal of

Hospitality Management, 63, 82-92.

Hardin, J. W., & Hilbe, J. M. (2012). Generalized estimating equations. Chapman and Hall/CRC.

Harrington, R. J., & Ottenbacher, M. C. (2010). Culinary tourism—A case study of the

gastronomic capital. Journal of Culinary Science & Technology, 8(1), 14-32.

Hemmington, N., & King, C. (2000). Key dimensions of outsourcing hotel food and beverage

services. International Journal of Contemporary Hospitality Management.

Henderson, J. C. (2004). Food as a tourism resource: A view from Singapore. Tourism

Recreation Research, 29(3), 69-74.

Hess, D. (2020). What to expect from hotel F&B design in 2020.Retrieved from

    https://www.hotelnewsnow.com/Articles/299909/What-to-expect-from-hotel-FandB-

    design-in-2020

Hjalager, A. M., & Richards, G. (Eds.). (2003). Tourism and gastronomy (Vol. 11). Routledge.

Hospitality-on. (2018). F&B: a growing division of the hotel industry. Retreived from

    https://hospitality-on.com/en/hotel-trends/fb-growing-division-hotel-industry

Hoydysh, A. (2019). 5 hotel food and beverage trends to watch in 2019. Retrieved from

    https://www.hospitalitytechnews.com/2019/07/03/5-hotel-food-and-beverage-trends-to-

    watch-in-2019/

Juhász-Dóra, K. (2017, July). Analysis of additional hotel services in the international luxury

    hotels–a case-study from Budapest. In Proceedings of the International Conference on

    Business Excellence (Vol. 11, No. 1, pp. 884-892). Sciendo.

Kapera, I. (2015). Hotel gastronomy as viewed by customers. British Food Journal.

Karson, K., & Murphy, K. S. (2013). Attracting local guests to resort food and beverage

    operations: The case of the Orlando Resort and Spa. Journal of Foodservice Business

    Research, 16(4), 391-406.

Kim, H.-b. (1996). Perceptual mapping of attributes and preferences: an empirical examination

    of hotel F&B products in Korea. International Journal of Hospitality Management, 15(4),

    373-391.

Kim, J., Lee, C.-Y., & Cho, Y. (2016). Technological diversification, core-technology

    competence, and firm growth. Research Policy, 45(1), 113-124.

Kivela, J., & Crotts, J. C. (2006). Tourism and gastronomy: Gastronomy's influence on how

tourists experience a destination. Journal of hospitality & tourism research, 30(3), 354-377.

Kivela, J. J., & Crotts, J. C. (2009). Understanding travelers' experiences of gastronomy through etymology and narration. Journal of Hospitality & Tourism Research, 33(2), 161-192.

Khor, S. L., & Ahmad, M. I. (2015). The Role of the Food and Beverage Department in Enhancing Overall Hotel Competitiveness in Malaysia. In Proceedings of the 1997 World Marketing Congress (pp. 451-454). Springer, Cham.

Lai, M. Y., Wang, Y., & Khoo-Lattimore, C. (2020). Do food image and food neophobia affect tourist intention to visit a destination? The case of Australia. Journal of Travel Research, 59(5), 928-949.

Lee, M. J., & Jang, S. S. (2007). Market diversification and financial performance and stability: A study of hotel companies. International Journal of Hospitality Management, 26(2), 362-375.

Lee, S., Lee, K.-S., Chua, B.-L., & Han, H. (2019). Hotel restaurants' challenges and critical success factors in Klang Valley, Malaysia: the inseparable roles of support centers and revenue streams. Journal of Quality Assurance in Hospitality & Tourism, 20(1), 16-43.

Liang, K. Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear models. Biometrika, 73(1), 13-22.

Lin, M. S., Jung, I. N., & Sharma, A. (2020). F&B performance in the United States hotel industry. Journal of Hospitality Financial Management, 28(1), 3. doi:https://doi.org/10.7275/rrkm-bd90

Mandelbaum, R. (2017). Hotel food-and-beverage expense, revenue shifts boost profits. Retrieved from https://www.hotelmanagement.net/food-beverage/cbre-hotel-food-and-beverage-expense-revenue-shifts-boost-profits

Markides, C. C., & Williamson, P. J. (1994). Related diversification, core competences and corporate performance. Strategic Management Journal, 15(S2), 149-165.

Montgomery, C. A. (1985). Product-market diversification and market power. Academy of management Journal, 28(4), 789-798.

Montgomery, C. A., & Hariharan, S. (1991). Diversified expansion by large established firms. Journal of Economic Behavior & Organization, 15(1), 71-89.

Mun, S. G., Woo, L., & Paek, S. (2019). How important is F&B operation in the hotel industry? Empirical evidence in the U.S. market. Tourism Management, 75, 156-168.

Mun, S. G., & Woo, L. (2021). The effects of the minimum wage on the operating performance of hotels in the US. Tourism Management, 82, 104205.

Mun, S. G., Woo, L., & Seo, K. (2020). Importance of F&B operation in luxury hotels: the case of Asia versus the US. International Journal of Contemporary Hospitality Management.

Murphy, K., Semrad, K., & Yost, E. (2013). The impact of discounting room rates on in-house restaurant sales. International journal of hospitality & tourism administration, 14(1), 50-65.

Ng, D. W. (2007). A modern resource based approach to unrelated diversification. Journal of management studies, 44(8), 1481-1502.

Park, K., & Jang, S. S. (2012). Effect of diversification on firm performance: Application of the entropy measure. International Journal of Hospitality Management, 31(1), 218-228.

Picone, P. M., & Dagnino, G. B. (2016). Revamping research on unrelated diversification

    strategy: perspectives, opportunities and challenges for future inquiry. Journal of

    Management & Governance, 20(3), 413-445.

Plümper, T., & Troeger, V. E. (2007). Efficient estimation of time-invariant and rarely changing

    variables in finite sample panel analyses with unit fixed effects. Political analysis, 124-

    139.

Promsivapallop, P., Jones, P., & Roper, A. (2015). Factors influencing hotel outsourcing

    decisions in Thailand: modifications to the transaction cost economics approach. Journal

    of Hospitality & Tourism Research, 39(1), 32-56.

Ramanathan, R., Ramanathan, U., & Zhang, Y. (2016). Linking operations, marketing and

    environmental capabilities and diversification to hotel performance: A data envelopment

    analysis approach. International Journal of Production Economics, 176, 111-122.

Rand, G. E. D., Heath, E., & Alberts, N. (2003). The role of local and regional food in

    destination marketing: A South African situation analysis. Journal of Travel & Tourism

    Marketing, 14(3-4), 97-112.

Richards, G. (2002). Gastronomy: An essential ingredient in tourism production and

    consumption. Tourism and gastronomy, 11, 2-20.

Rumelt, R. P. (1982). Diversification strategy and profitability. Strategic Management Journal,

    3(4), 359-369.

Sambharya, R. B. (1995). The combined effect of international diversification and product

    diversification strategies on the performance of US-based multinational corporations.

    MIR: Management International Review, 197-218.

Sevenrooms. (2019). Checking in for F&B: Report for the hotel industry 2019. Retrieved from

    https://sevenrooms.com/en/resources/checking-in-for-fb/

Simon, E. (2018). Hotel food-and-beverage revenue experiences upturn in 2017. Retreived from

    https://www.hotelmanagement.net/food-beverage/hotel-food-and-beverage-revenue-

    experiences-upturn-2017

Social Tables. (2018). 6 innovative hotel food & beverage ideas that grow group revenue.

    Retrieved from https://www.socialtables.com/blog/hotel-sales/hotel-food-beverage/

Stern, I., & Henderson, A. D. (2004). Within-business diversification in technology-intensive

    industries. Strategic Management Journal, 25(5), 487-505.

STR. (2019). Hotel F&B performance up again in 2018. STR. https://str.com/es/press-

    release/str-hotel-fb-performance-again-2018.

Tang, C.-H., & Jang, S. (2010). Does international diversification discount exist in the hotel

    industry? Journal of Hospitality & Tourism Research, 34(2), 225-246.

Ting, D. (2019). Marriott needs to revamp its dining strategy — and knows it. Retrieved from

    https://table.skift.com/2019/03/29/marriott-knows-it-needs-to-up-its-restaurant-and-bar-

    game/

Williams, C. (2020). How Hotel F&B Pivoted in Response to COVID-19, and What the Future

    Holds. Retrieved from https://www.hvs.com/article/8863-how-hotel-fb-pivoted-in-

    response-to-covid-19-and-what-the-future-holds

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data. MIT press.

Wu, C. H.-J., & Liang, R.-D. (2009). Effect of experiential value on customer satisfaction with

    service encounters in luxury-hotel restaurants. International Journal of Hospitality

    Management, 28(4), 586-593.

Zheng, C., & Tsai, H. (2019). Diversification and performance in the hotel industry: do board

    size and family representation matter? International Journal of Contemporary Hospitality

    Management.

Table 1. GEE regression of F&B RevPAR on the room occupancy rate

	Log(F&B RevPAR)			
	All	Luxury	Upper-Up	Upscale
Log(Occupancy)	0.9014***	0.7082***	0.7310***	1.1936***
	(0.0594)	(0.0844)	(0.0813)	(0.1256)
Log(State revenue)	0.2820***	0.4901***	0.0616	0.2029*
	(0.0890)	(0.1641)	(0.0954)	(0.1089)
Log(State average monthly employment)	0.0006	-0.6227	-0.0973	1.5413***
	(0.2135)	(0.4217)	(0.2833)	(0.3125)
Year	Yes	Yes	Yes	Yes
Constant	-5.18642***	1.6458	1.0345	1.6458
	(2.1253)	(4.6978)	(3.0462)	(4.6978)
Observation	4,386	721	2,176	1,319
Wald chi^2	1,155***	747***	524***	694***

Note: GEE is generalized estimating equations model; bracket is cluster-adjusted robust standard error; *significant at 10%; **significant at 5%; ***significant at 1%.

Figure 1. Residual plot of F&B RevPAR and room occupancy regression
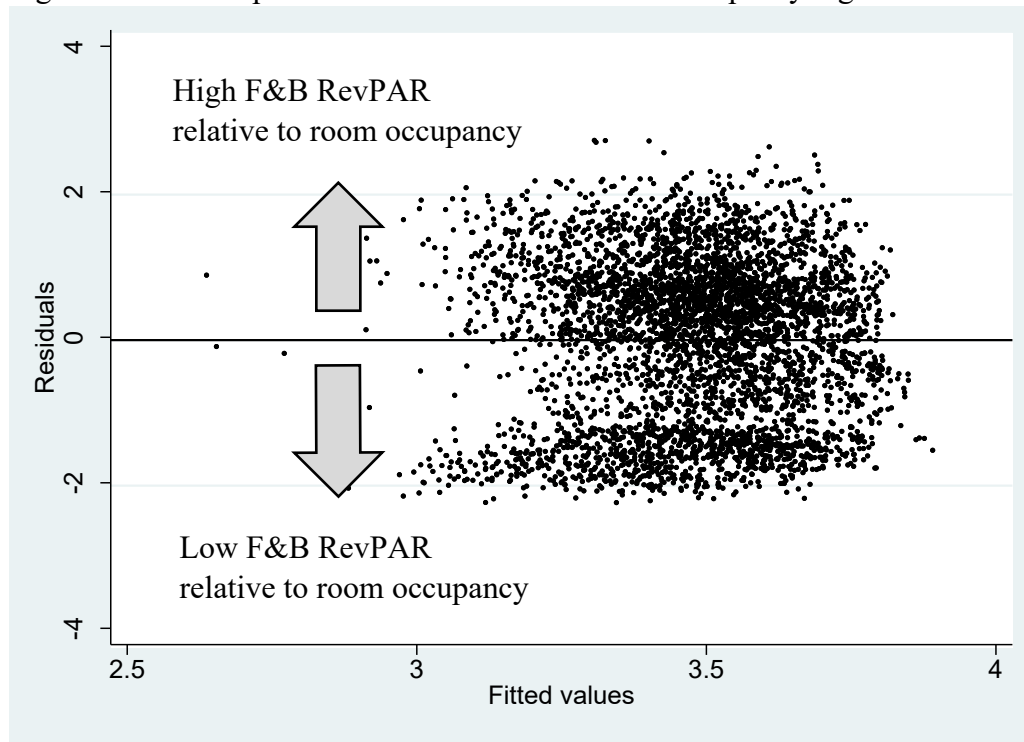
Table 2. Descriptive information

	All	High F&B Revenue relative to room occupancy	Difference	Low F&B Revenue relative to room occupancy
Occupancy	73.12	72.66	-1.09***	73.75
	(9.98)	(9.71)	(0.31)	(10.32)
ADR	178.67	212.63	81.84***	130.79
	(101.80)	(117.51)	(2.86)	(39.90)
RevPAR	132.24	156.28	57.95***	98.33
	(78.70)	(89.98)	(2.25)	(39.33)
GOPPAR	67.55	81.27	33.06***	48.22
	(43.60)	(48.74)	(1.24)	(24.34)
EBITDAPAR	44.15	52.86	21.00***	31.86
	(36.42)	(41.33)	(1.07)	(23.04)
F&B revenue	0.3875	0.5681	0.44***	0.1329
/Rooms revenue	(0.2915)	(0.2492)	(0.01)	(0.0979)
F&B revenue	0.2494	0.3464	0.23***	0.1125
/Total revenue	(0.1423)	(0.0979)	(0.00)	(0.0570)
Class	1.90	2.25	-0.85***	1.41
	(0.70)	(0.52)	(0.02)	(0.62)
Age	27.65	31.26	8.69***	22.57
	(19.89)	(23.93)	(0.60)	(10.08)
Size	3.52	4.00	1.15***	2.85
	(1.04)	(0.89)	(0.03)	(0.85)
Observation	4,386	2,566	746	1,820

Note: High F&B revenue relative to room occupancy and low F&B revenue relative to room occupancy are based on the residuals of Model 1; Class is 3 for luxury hotels, 2 for upper-upscale hotels, and 1 for upscale hotels; Location is 1 for Urban, 2 for Suburban, 3 for Airport, 5 for Resort, Interstate, and Small metro/town; Size is 5 for the largest hotels in number of rooms and 1 for the smallest hotels in number of rooms; bracket is cluster-adjusted robust standard error; *significant at 10%; **significant at 5%; ***significant at 1%.

Figure 2. F&B revenue by locations

Number of Hotels

- Positive Out F&B RevPAR
- Negatvie Out F&B RevPAR

Urban | Suburban | Airport | Resort | Small Metro/Town

Proportion of Hotels

- Positive Out F&B RevPAR
- Negative Out F&B RevPAR

Urban | Suburban | Airport | Resort | Small Metro/Town

Table 3. Sources of F&B revenue

	Variables	Positive OutF&BRevPAR	Difference	Negative OutF&BRevPAR
Luxury Hotels	Occupancy %	*72.54*	***-3.4***	*75.94*
	Restaurant FoodRevPAR	47.08	**24.91**	22.17
	RoomServiceFoodRevPAR	10.39	5.15	5.24
	BanquetFoodRevPAR	63.34	**33.14**	30.20
	RestaurantBeverageRevPAR	29.33	16.58	12.75
	RoomServiceBeverageRevPAR	1.70	0.9	0.80
	BanquetBeverageRevPAR	13.04	8.41	4.63
	OtherF&BRevPAR	34.04	19.59	14.45
Upper-Up Hotels	Occupancy %	*74.46*	***-4.07***	*78.53*
	Restaurant FoodRevPAR	15.22	7.06	8.16
	RoomServiceFoodRevPAR	2.30	0.63	1.67
	BanquetFoodRevPAR	34.96	**21.71**	13.25
	RestaurantBeverageRevPAR	8.62	4.18	4.44
	RoomServiceBeverageRevPAR	0.38	0.13	0.25
	BanquetBeverageRevPAR	5.09	3.73	1.36
	OtherF&BRevPAR	16.31	**9.94**	6.37
Up Hotels	Occupancy %	*75.87*	***1.14***	*74.73*
	Restaurant FoodRevPAR	9.87	4.1	5.77
	RoomServiceFoodRevPAR	1.62	0.54	1.08
	BanquetFoodRevPAR	20.82	**17.85**	2.97
	RestaurantBeverageRevPAR	6.02	4.27	1.75
	RoomServiceBeverageRevPAR	0.24	0.11	0.13
	BanquetBeverageRevPAR	2.54	2.15	0.39
	OtherF&BRevPAR	9.36	**7.44**	1.92

Table 4. Effect of F&B RevPAR from outside-hotel customers on overall hotel performance

| | All Hotels | | | | | | | | | | | |
| | Log(Occupancy) | | | Log(ADR) | | | Log(RevPAR) | | | Log(GOPPAR) | | |
	OLS	RE	GEE	OLS	RE	GEE	OLS	RE	GEE	OLS	RE	GEE
OutLogF&BRevPAR	-0.0340***	-0.0075	-0.0070	0.1969***	0.1359***	0.1108***	0.1630***	0.1444***	0.1266***	0.1763***	0.2290***	0.2290***
	(0.0033)	(0.0055)	(0.0056)	(0.0067)	(0.0133)	(0.0136)	(0.0081)	(0.0144)	(0.0151)	(0.0131)	(0.0202)	(0.0202)
Class	0.0261***	-0.0047	-0.0050	0.1783***	0.0223***	0.0079	0.2045***	0.0217**	0.0092	0.1993***	0.0630***	0.0626***
	(0.0047)	(0.0049)	(0.0050)	(0.0073)	(0.0061)	(0.0052)	(0.0097)	(0.0103)	(0.0106)	(0.0182)	(0.0183)	(0.0182)
Location	-0.0008	-0.0012	-0.0012	-0.0170***	0.0016	0.0031	-0.0179***	0.0006	0.0012	0.0006	0.0004	0.0004
	(0.0015)	(0.0032)	(0.0032)	(0.0028)	(0.0048)	(0.0044)	(0.0035)	(0.0067)	(0.0066)	(0.0055)	(0.0115)	(0.0115)
Age	0.0008***	0.0004	0.0004	0.0012***	0.0003	-0.0001	0.0020***	0.0005	0.0001	0.0015***	-0.0002	-0.0003
	(0.0001)	(0.0002)	(0.0002)	(0.0003)	(0.0006)	(0.0005)	(0.0003)	(0.0008)	(0.0008)	(0.0004)	(0.0012)	(0.0012)
Size	0.0298***	0.0170***	0.0167***	-0.0800***	-0.0076	0.0028	-0.0502***	-0.0004	0.0080	-0.0158	-0.0115	-0.0113
	(0.0023)	(0.0054)	(0.0054)	(0.0055)	(0.0075)	(0.0068)	(0.0066)	(0.0123)	(0.0125)	(0.0099)	(0.0188)	(0.0187)
Log(State revenue)	0.0241***	0.0645***	0.0669***	0.1676***	0.3646***	0.4622***	0.1917***	0.4555***	0.5497***	0.1931***	0.4424***	0.4456***
	(0.0050)	(0.0138)	(0.0140)	(0.0095)	(0.0314)	(0.0379)	(0.0115)	(0.0425)	(0.0507)	(0.0196)	(0.0543)	(0.0544)
Log(State average monthly employment)	0.5910***	0.4586***	0.4540***	0.5836***	0.0423	-0.1404*	1.1745***	0.4560***	0.2808***	1.1188***	0.4995***	0.4934***
	(0.0642)	(0.0570)	(0.0574)	(0.1332)	(0.0781)	(0.0797)	(0.1612)	(0.1152)	(0.1246)	(0.2309)	(0.1962)	(0.1960)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-5.1761***	-3.9715***	-3.9478***	-6.2201***	-2.4690***	-1.6538*	-16.0006***	-10.8269***	-10.0478***	-16.0047***	-11.7388***	-11.7106***
	(0.9622)	(0.7692)	(0.7700)	(1.9938)	(0.9446)	(0.8714)	(2.4179)	(1.3673)	(1.3540)	(3.4570)	(2.6196)	(2.6150)
Observation	4,386	4,386	4,386	4,386	4,386	4,386	4,386	4,386	4,386	4,366	4,366	4,366
R^2	0.2082	0.0573	N/A	0.6037	0.4290	N/A	0.5337	0.3501	N/A	0.4055	0.3449	N/A
Wald chi^2	N/A	860***	862***	N/A	4,325***	4,325***	N/A	3,622***	3,611***	N/A	1,601***	1,603***

Note: OLS is ordinary linear regression; RE is a two-way random-effects model; GEE is generalized estimating equations; OutLogF&BRevPAR is a proxy of the F&B RevPAR from outside-hotel customers is based on the residuals of Model 1; Class is 3 for luxury hotels, 2 for upper-upscale hotels, and 1 for upscale hotels; Location is 1 for Urban, 2 for Suburban, 3 for Airport, 5 for Resort, Interstate, and Small metro/town; Size is 5 for the largest hotels in number of rooms and 1 for the smallest hotels in number of rooms; bracket is cluster-adjusted robust standard error; *significant at 10%; **significant at 5%; ***significant at 1%.
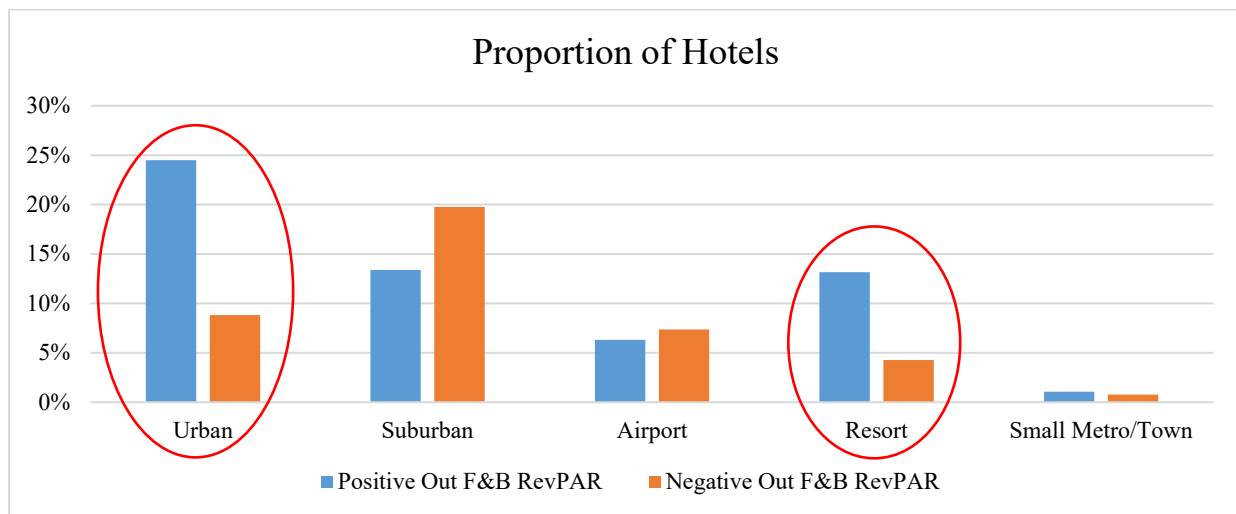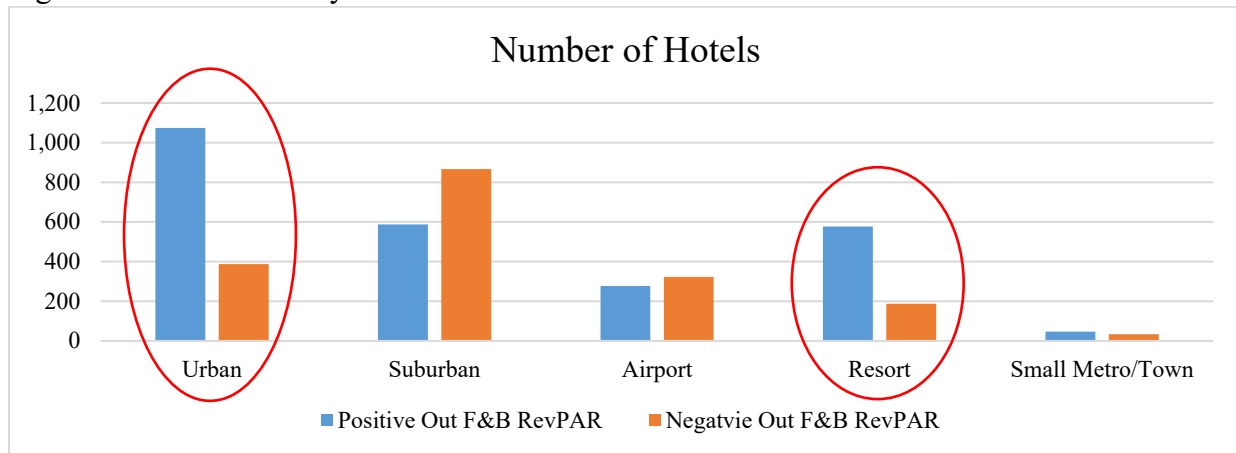
Table 5. Effect of F&B RevPAR from outside-hotel customers on hotel performance by hotel classes

	GEE Model											
	Log(Occupancy)			Log(ADR)			Log(RevPAR)			Log(GOPPAR)		
	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale
OutLogF&BRevPAR	-0.0042	-0.0125	-0.0101	0.1982***	0.1037***	0.0699***	0.2184***	0.1074***	0.0651***	0.4348***	0.3086***	0.1154***
	(0.0162)	(0.0108)	(0.0134)	(0.0648)	(0.0235)	(0.0169)	(0.0601)	(0.0278)	(0.0250)	(0.0983)	(0.0497)	(0.0424)
Location	-0.0234**	-0.0043	0.0226***	-0.0117	0.0042	-0.0115	-0.0286	-0.0008	0.0103	-0.0231	-0.0086	0.0177
	(0.0004)	(0.0048)	(0.0075)	(0.0228)	(0.0069)	(0.0129)	(0.0280)	(0.0100)	(0.0193)	(0.0388)	(0.0184)	(0.0269)
Age	0.0003	0.0008**	0.0006	-0.0015	0.0020**	0.0031	-0.0011	0.0025**	0.0037	-0.0006	0.0010	0.0022
	(0.0004)	(0.0003)	(0.0008)	(0.0014)	(0.0009)	(0.0026)	(0.0017)	(0.0012)	(0.0033)	(0.0016)	(0.0014)	(0.0045)
Size	0.0069	0.0008	0.0566***	-0.0156	0.0093	0.0029	-0.0087	-0.0055	0.0548*	0.0644	0.0105	-0.0005
	(0.0144)	(0.0100)	(0.0121)	(0.0286)	(0.0179)	(0.0225)	(0.0424)	(0.0240)	(0.0288)	(0.0749)	(0.0382)	(0.0438)
Log(State revenue)	0.0664	0.0533***	0.0721***	0.5204***	0.3227***	0.2427***	0.6677***	0.4020***	0.3255***	0.5621***	0.3999***	0.4808***
	(0.0406)	(0.0183)	(0.0218)	(0.0980)	(0.0442)	(0.0374)	(0.1468)	(0.0560)	(0.0507)	(0.1854)	(0.0764)	(0.0779)
Log(State average monthly employment)	0.3134**	0.3972***	0.5021***	-0.0484	-0.1399	0.2325	0.1030	0.2155	0.7197***	0.5696	0.2222	0.2675
	(0.1420)	(0.0791)	(0.1109)	(0.2001)	(0.1283)	(0.1815)	(0.2913)	(0.1643)	(0.2478)	(0.5080)	(0.2797)	(0.3716)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.7417	-2.7567***	-4.9221***	-3.5078	0.9412	-3.3465	-8.9886***	-6.2222**	-12.8414***	-15.0050**	-6.9195*	-9.4618*
	(0.2189)	(1.0611)	(1.5076)	(0.0056)	(1.5353)	(2.6466)	(3.1550)	(2.0067)	(3.5337)	(6.8833)	(3.7920)	(5.1943)
Observation	721	2,176	1,319	721	2,176	1,319	721	2,176	1,319	711	2,174	1,319
Wald chi²	231***	454***	454***	1,591***	2,295***	1,415***	1,156***	1,798***	1,189***	293***	656***	785***

Note: GEE is generalized estimating equations; OutLogF&BRevPAR is a proxy of the F&B RevPAR from outside-hotel customers is based on the residuals of Model 1; Location is 1 for Urban, 2 for Suburban, 3 for Airport, 5 for Resort, Interstate, and Small metro/town; Size is 5 for the largest hotels in number of rooms and 1 for the smallest hotels in number of rooms; bracket is cluster-adjusted robust standard error; *significant at 10%; **significant at 5%; ***significant at 1%.

Table 6. Effect of F&B RevPAR from outside-hotel customers on hotel performance by hotel classes

	GEE Model											
	Log(Occupancy)			Log(ADR)			Log(RevPAR)			Log(GOPPAR)		
	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale
OutLogF&BRevPAR	-0.0129	-0.0138	-0.0161	0.1908***	0.0977***	0.0783***	0.1971***	0.0993***	0.0651***	0.3995***	0.3156***	0.1290***
	(0.0153)	(0.0090)	(0.0128)	(0.0653)	(0.0243)	(0.0176)	(0.0574)	(0.0263)	(0.0250)	(0.0925)	(0.0497)	(0.0442)
OutLogF&BRevPAR * Δ F&B cost ratio	-0.0529	-0.0021	0.0305	0.0786	-0.0525	-0.0034	0.0300	-0.0506	0.0274	-0.3037*	-0.0309	-0.1390
	(0.0333)	(0.0348)	(0.0599)	(0.0521)	(0.0637)	(0.0604)	(0.0611)	(0.0687)	(0.0982)	(0.1825)	(0.1653)	(0.1653)
Δ F&B cost ratio	-0.0203	-0.0338	-0.0027	-0.0463	-0.0091	0.0463*	-0.0715	-0.0435	0.0452	-0.0827	-0.1108	-0.0116
	(0.0328)	(0.0210)	(0.0308)	(0.0534)	(0.0165)	(0.0241)	(0.0717)	(0.0235)	(0.0465)	(0.2612)	(0.0737)	(0.0815)
Location	-0.0217***	-0.0040	0.0213***	-0.0116	0.0045	-0.0132	-0.0252	-0.0003	0.0068	-0.0222	-0.0090	0.0157
	(0.0084)	(0.0047)	(0.0072)	(0.0225)	(0.0068)	(0.0136)	(0.0283)	(0.0098)	(0.0198)	(0.0388)	(0.0184)	(0.0278)
Age	0.0003	0.0008**	0.0008	-0.0015	0.0020**	0.0031	-0.0011	0.0026**	0.0040	-0.0006	0.0010	0.0024
	(0.0004)	(0.0003)	(0.0008)	(0.0013)	(0.0009)	(0.0026)	(0.0017)	(0.0012)	(0.0032)	(0.0017)	(0.0013)	(0.0045)
Size	0.0055	-0.0007	0.0596***	-0.0092	0.0107	0.0079	-0.0009	-0.0057	0.0641**	0.0536	0.0072	0.0085
	(0.0139)	(0.0101)	(0.0118)	(0.0267)	(0.0175)	(0.0229)	(0.0415)	(0.0238)	(0.0283)	(0.0733)	(0.0385)	(0.0445)
Log(State revenue)	0.0603	0.0560***	0.0716***	0.5416***	0.3308***	0.2387***	0.6901***	0.4168***	0.3217***	0.5277***	0.3878***	0.4791***
	(0.0381)	(0.0187)	(0.0221)	(0.1030)	(0.0443)	(0.0376)	(0.1515)	(0.0567)	(0.0511)	(0.1860)	(0.0761)	(0.0793)
Log(State average monthly employment)	0.2666*	0.3988***	0.4285***	0.0183	-0.1841	0.2217	0.1042	0.1642	0.6309**	0.8877	0.0580	0.2079
	(0.1415)	(0.0899)	(0.1330)	(0.2115)	(0.1308)	(0.1872)	(0.3164)	(0.1747)	(0.2692)	(0.5897)	(0.2976)	(0.4202)
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.9108	-2.8303***	-3.8043**	-4.9576**	1.4456	-3.1122	-9.4831***	-5.7327**	-11.4400***	-19.1328**	-4.1741	-8.5483
	(1.8660)	(1.2524)	(1.8717)	(2.2086)	(1.6134)	(2.7227)	(3.0789)	(2.1951)	(3.8311)	(8.4796)	(4.1364)	(5.9706)
Observation	693	2,095	1,227	693	2,095	1,227	693	2,095	1,227	684	2,058	1,223
Wald chi^2	218***	444***	429***	1,047***	1,519***	914***	1,133***	1,519***	842***	441***	608***	560***

Note: GEE is generalized estimating equations; OutLogF&BRevPAR is a proxy of the F&B RevPAR from outside-hotel customers is based on the residuals of Model 1; Δ is the difference from previous year; F&B cost ratio is F&B cost over F&B revenue; Location is 1 for Urban, 2 for Suburban, 3 for Airport, 5 for Resort, Interstate, and Small metro/town; Size is 5 for the largest hotels in number of rooms and 1 for the smallest hotels in number of rooms; bracket is cluster-adjusted robust standard error; *significant at 10%; **significant at 5%; ***significant at 1%.

Table 7. Effect of F&B RevPAR from outside-hotel customers on hotel profitability by hotel classes

	GEE Model					
	GOP over Total Revenue			EBITDA over Total Revenue		
	Luxury	Upper-Up	Upscale	Luxury	Upper-Up	Upscale
OutLogF&BRevPAR	0.0950***	0.1095***	0.0273*	0.0925**	0.0910***	0.0276*
	(0.0325)	(0.0183)	(0.0158)	(0.0391)	(0.0202)	(0.0165)
Location	0.0085	-0.0008	0.0025	-0.0054	-0.0099	0.0062
	(0.0108)	(0.0061)	(0.0054)	(0.0119)	(0.0064)	(0.0080)
Age	-0.0005	-0.0011***	-0.0003	-0.0006	-0.0016***	-0.0015**
	(0.0006)	(0.0004)	(0.0008)	(0.0006)	(0.0005)	(0.0008)
Size	0.0582***	0.0061	-0.0248**	0.0478**	0.0164	-0.0192
	(0.0192)	(0.0105)	(0.0118)	(0.0218)	(0.0129)	(0.0124)
Log(State revenue)	0.1100**	0.0703***	0.0903***	0.0958	0.0301	0.1313***
	(0.0539)	(0.0226)	(0.0197)	(0.0584)	(0.0239)	(0.0224)
Log(State average monthly employment)	0.0834	-0.0911	-0.3410***	0.0700*	0.3242***	-0.4218***
	(0.2150)	(0.0802)	(0.0871)	(0.3042)	(0.1132)	(0.0967)
Year	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-3.0963	0.5765	4.0125***	-10.3255**	-5.1165***	4.2841***
	(3.2571)	(1.0689)	(1.2421)	(4.8547)	(1.5809)	(1.3232)
Observation	721	2,176	1,319	721	2,176	1,319
Wald chi^2	215***	400***	323***	260***	254***	351***

Note: GEE is generalized estimating equations; OutLogF&BRevPAR is a proxy of the F&B RevPAR from outside-hotel customers is based on the residuals of Model 1; GOP is gross operating profits; EBITDA is earnings before interest, tax, depreciation, and amortization; Location is 1 for Urban, 2 for Suburban, 3 for Airport, 5 for Resort, Interstate, and Small metro/town; Size is 5 for the largest hotels in number of rooms and 1 for the smallest hotels in number of rooms; bracket is cluster-adjusted robust standard error; *significant at 10%; **significant at 5%; ***significant at 1%.