The Impact of Yield Management on the Profitability of Food and Beverage Department in Five-Star Hotels

Oncy Helmy Abdel Gawad Shaheen∗, Mohamed Abdel Wahab Morsy, Omar Qoura, Karam Mohamed Gomaa Zaki

Faculty of Tourism and Hotels, Fayoum University, Egypt:

ARTICLE INFO

Keywords:
Restaurants
Yield Management
Dynamic Pricing
Competition Analysis
Price Fairness
Food and Beverage.

ABSTRACT

Research on applying the Yield Management concept to restaurants has been growing since the term Restaurant Yield Management (RYM) was first investigated in the late nineties. This study presents a comprehensive review of the effect of yield management implementation on the profitability of food and beverage sections at five-star hotels in Greater Cairo. The study aims to maximize the revenue in restaurants by applying RYM. The quantitative approach employing an online structured questionnaire was used. The employed sampling type in this study is total population sample, non-probability and purposive. The total distributed questionnaire was one hundred seventy questionnaires and the number of returned and valid questionnaires for analysis is one hundred fifty with the response rate was (88.23%). The findings indicate that pricing significantly affects profitability. Also, competition significantly affects profitability. On the contrary, the other (six) variables of yield management were found to have a significant effect on profitability. The high significance of pricing and competition analysis.

©2021 Faculty of Tourism and Hotels, Fayoum University All rights reserved

1. Introduction

This study focuses on the impact of implementing Yield Management (YM) on the profitability of the food and beverage department in five-star hotels in Greater Cairo, YM has become an essential strategic tool in capacity-restrained hotels whose total revenues often depend on their abilities to use capacity efficiently. As the service provider reaches capacity, limitations restrict the ability to serve additional customers. A restaurant may have insufficient seating capacity during the peak period typically for serving lunches. Certainly, most service providers face some capacity limit (Webb et al., 2020) and the combination of perishability and capacity limitations encourage hotels to focus on efficiently getting the most out of existing capacity. The restaurant is adequately like hotels and airlines operations in that YM practices are applicable for strategic planning. However, restaurants also have unique characteristics that lead to special challenges, requiring restaurant managers to be creative in developing appropriate YM strategies. Among the unique structures of restaurants are the relative flexibilities of capacities and the flexible durations of meals, and these represent vital factors to be considered when implementing YM practices. Unlike airlines and hotels, restaurants have somewhat more flexible capacities, for example, a restaurant may have available outdoor courts for

* Contact Oncy Shaheen at: oncyshaheen8@gmail.com
extra seating during peak periods. Moreover, the total available seating capacity per day in a restaurant is not fixed since customers’ seating durations are unpredictable.

There had been scarcity of research about food and beverage yield management and profitability in the hotel sector. Despite of the importance of recent yield management implemented in the food & beverage department in the hotels, the researcher observed a low level of yield management implementation and not comprehensive as per the system requirements. The goal of yield management (YM) is to maximize revenue per available seat-hour by manipulating the price and meal duration.

2. Literature review

2.1 Yield management background

It was not until the 1980s when YM started to be used in hotels and other segments of the hospitality industry while other companies continued concentrating on revenue and profit, In the late 1980s, hotels also began implementing the RM system. Leaders were Marriott, Hilton, and Sheraton (Lieberman, 2011). In 1990 Revenue Management began to replace the term Yield Management because of the desire to increase the opportunity of including a wider range of reservation inventory controls than used by food and beverage and rooms division teams in hotels, definite recognition of variable costs, and price optimization (Lieberman, 2011). YM purposes in hotels were at the beginning a little different than in airlines, where they were used to control which rate level should be offered, rather than controlling discount allocations.

2.2. Yield Management Definition

Several definitions of yield management have been put forward, but to date, no agreement exists on its meaning. With limited resources, the restaurant must decide whom to sell at what price. This is what Sahut, Hikkerova, & Pupion (2016) pointed out: “selling the right seats to the right customers at the right prices”.

Definition of YM, is recognized as a management practice that fits into multiple realms including marketing, strategy, and consumer behavior (Ivanov et al. 2014). A consensus seems to be found around the idea that yield management is a sophisticated form of managing the supply/demand relation using a simultaneous manipulation of rates and available capacities, largely adopted by sectors such as airlines or hotels (Selmi, 2009).

Yield Management for Food and Beverage Services

Restaurants can enhance their income by increasing the number of clients they serve and the average spending per guest. and additional food and beverage facility units are all samples of restaurant efforts to increase their capacity to serve more people. On the other hand, suggestive selling by food and beverage employees, creative menus, and special discounts for very large purchases are samples of efforts to increase average spending per head. Yield management is one of the above-mentioned ways to increase revenue in restaurants (Huang & Chang, 2011).

2.3. Yield Management Practices

2.3.1. Distribution channels

Martin-Fuentes and Mellinas (2018) found that distribution channels determine revenue and profitability for tourism and hospitality principles. When looking at customer consumptions, online travel agencies have become the most widespread for hotel restaurants, with nearly 70 percent of seats sold (Verhoef, et al., 2015).

2.3.2. Calculating & updating sales

Restaurants have a problem with no-shows. Many properties use overbooking to help compensate for potential no-shows, and restaurants could follow a similar practice. Displaced clientele's in the airline and hotel industries must be rewarded by offering them a free flight, but in restaurants, displaced clients usually just must wait to be seated. Airline and hotel overbooking models could be applied to restaurants to help determine proper overbooking stages (Kimes, 2008). Dickson et al. (2009) claims that a reservation system works better if the provider's capacity is fixed or predictable and a customer can choose all available slots from a reservation system. Thompson and Kwortnik (2008) surveyed 357 restaurants with reservation systems. Although 81.5% of the respondents were assigned tables at the time of bookings or at the start of their serving periods (locked reservation system), their simulation results showed that pooling reservation systems (assigning tables to booked parties at the time of arrival at the restaurant) outperformed locked reservation systems in terms of table turnaround time, which
resulted in serving more customers during peak periods.

2.3.3. Pricing

Ivanov (2014) stated that an appropriate pricing strategy is important for hotels to stay competitive, over the last two decades, pricing and yield management (YM) techniques have become a popular field of research in tourism literature as well as the management of hotel market positioning. Several questions stand up regarding pricing and YM techniques, mainly: What is these pricing and YM techniques? What have been the main motivations that have enabled the YM evolution? What are the current trends of research? This article presents a comprehensive review of YM and price optimization (PO) methods in the hotel sector to answer these questions.

2.3.4. Budgeting

Budgets and cost control structures help restaurant managers in assuring that there is no critical fluctuation from profit and cost goals of restaurant firms in the whole process of purchasing, storage, manufacturing, and service. Loss of profit due to the bad controls is a mutual concern in hospitality settings (Borchgrevink and Anchill, 2003). A knowledge of break-even levels and profit- and loss implications of different business scenarios are relevant if managers are to make informed decisions that ensure survival, optimize profit returns and limit risk (Kim & Ham, 2016).

2.3.5. Competition analysis

The hotel industry strategy is first and foremost a broad and complex concept. To provide a definition, Horwath (2017) states that strategy is the creation of an exclusive and valuable position involving a different set of activities. The core of tactical positioning is to choose activities that yield higher profitability because they are different from competitors and thus create a sustainable competitive advantage.

2.3.6 Forecasting

Forecasting is an initial component of the YM cycle, it drives many consequential decisions, with imprecise estimates leading to suboptimal YM recommendations (McCracken, 2019). When faced with dynamic booking windows, the challenge for revenue management forecasting is most evident with regards to current data techniques. Traditional pick-up methods that are not frequently adjusted for.

changes in consumer behavior may be problematic as pickup rates vary over time (Webb et al., 2020). Revenue management forecasting has received significant attention in the hospitality literature (Fiori and Foroni, 2020). Also, recent studies have found increased accuracy in revenue management forecasting when utilizing models that incorporate early reservation patterns due to inter-temporal correlations between early reservations and future demand (Fiori and Foroni, 2020).

2.3.6. Culture

According to Talon-Ballestero et al. (2014), YM is not an application or system but a management culture that has its implementation costs. This process can be developed gradually depending on the resources available. Therefore, in the first stages, a consolidated YM culture is more important than large investments in new tools and systems. Talon-Ballestero et al. (2014) discovered that either the hotel management, the owner, or the chain hotels supported the implementation of YM strategies, however almost 12% of the participating hotels stated that they never received YM training.

2.3.7. Evaluation

The model for evaluating YM implementation MERMI, (Talon-Ballestero et al., 2014) is the only published model that establishes a categorization of hotels according to the degree of YM implementation. It provides guidance for the satisfactory implementation and use of YM tailored to the characteristics of any given establishment.

2.3.8 Food and beverage Profitability

A business needs to make a profit to be able to offer a return for any investors and to be able to grow the business by re-investment (Parsons, 2002). The critical performance measure for any business is profitability. Without ongoing profitability, a business is simply eroding its stock base. Because of its importance, profitability concepts are employed in many areas of business research. For instance, they are employed in many hospitality research (Zaki, K., & Quora, O. 2019). Also, profitability definitions may be expressed in absolute terms (financial profits) profits relative to competitors, or profits relative to hotel averages. Sandvik et al. (2014) defined profitability as the ratio of returns to identifiable assets and sales. Also, there are numerous studies tend to attribute the primary source of the profitability of a hotel to its location and its geographical attraction of customers. Lado-
Sestayo et al. (2018) stated that profitability depends largely on the market structure and the level of demand of the tourist destination. The profitability of a hotel depends on the quality of the service provided, as evidenced by the study by Aznar et al. (2016).

Based on the previous literature, a conceptual framework of the can be proposed as follows:

Figure 1

Study conceptual frame work

Through the previous conceptual framework, the following Hypotheses can be formulated:

H1: Distribution channels have a positive significant effect on food and beverage department profitability.

H2: Calculating & updating sales has a positive significant effect on food and beverage department profitability.

H3: Pricing has a positive significant effect on food and beverage department profitability.

H4: Budgeting has a positive significant effect on food and beverage department profitability.

H5: Competition analysis has a significant positive effect on the food and beverage department profitability.

H6: Forecasting has a positive significant effect on food and beverage department profitability.

H7: YM culture has a positive significant effect on food and beverage profitability.

H8: F&B yield management practices (Evaluation) have a positive significant effect on food and beverage department profitability.

H9: YM obstacles has a negative significant effect on food and beverage profitability.

3. Methodology

A quantitative approach using an online structured questionnaire was used in this study since it was found to be more operative and faster at collecting the required data from the Food and Beverage managers, sales & marketing managers, Revenue managers, Executive chefs, General managers who work in five-star hotels in Greater Cairo.

3.1 Data collection instrument

The questionnaire was designed to gather empirical data from the targeted sample. It is divided into nine parts covering the main constructs:

- Food and beverage 4 items, forecasting, 9 items; distribution channels 4 items, updating limits, reservations, and sales 7 items, budgeting 2 items, pricing 13 items, analysis of Competition 8 items, evaluation 5 items, Profitability 16 items. 10 obstacles 6 items.

3.2 Study Population and Sample

The sample frame of this stage of the study included 170 which represent the whole population of the study. The range of this study is restricted to five-
star hotels in Greater Cairo. According to the Egyptian Hotel Guide, 37th edition (2018-2019), the number of five-star hotels in Greater Cairo is (34) hotels. To achieve the objectives of the study, the researcher distributed the questionnaire forms through the website, e-mail WhatsApp, to General Managers, Food and Beverage managers, sales and marketing managers, revenue managers, and executive chefs in the above-mentioned hotels. As they are the concerned level to food and beverage revenue. The total distributed questionnaire was one hundred seventy questionnaires the number of returned and valid questionnaires for analysis is one hundred fifty with the response rate was (88.23%).

4. Results and discussion

4.1. Descriptive analysis

Table 1

| Food and beverage yield management Practices (Culture)                                                                 | Mean  | Std. Deviation | N  |
|-----------------------------------------------------------------------------------------------------------------------|-------|----------------|----|
| Food and Beverage management supports the implementation of Yield Management strategies.                              | 4.37  | .832           | 150|
| The revenue management team is up to date in Yield Management techniques.                                              | 4.26  | .746           | 150|
| The Yield Management team took appropriate training to a better understanding of YM practices.                         | 4.27  | .785           | 150|
| The Food and Beverage management understand customers’ perception of product value and product prices.                | 4.39  | .750           | 150|

Analysis of data showed that the total mean of the Food and beverage yield management Practices (Culture) was 4.33. This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that Culture affecting food and beverage yield management implementation. From above-mentioned data, it was also clear that the mean value of 4.39 was the greatest one among the other values. This value was related to the point that the food and beverage management understand customers’ perception of product value and product prices were suitable for implementing the yield management in the department. Also, it was noticed that the standard deviation (.778) is less than half of the mean (2.165).

Table 2

| Food and beverage yield management Practices (Forecasting)                                                                 | Mean  | Std. Deviation | N  |
|-----------------------------------------------------------------------------------------------------------------------|-------|----------------|----|
| Historical data are taken into consideration on:(Type of customers)                                                   | 4.29  | .630           | 150|
| Historical data are taken into consideration on (Gross operating profit)                                               | 4.27  | .766           | 150|
| Historical data are taken into consideration on (Type of menu item sold -Average menu item rate -Length of service duration.) | 4.30  | .775           | 150|
| Rejcting reservations due to overbooking                                                                          | 3.71  | 1.109          | 150|
| Forecasts compare current to past reservation trends                                                                | 4.13  | .932           | 150|
| Forecasts consider existing table reservations for a specific date.                                                 | 4.07  | .880           | 150|
| The advance notice given for reservations by each market segment is known                                           | 4.07  | .808           | 150|
| Pick-up (an estimate of expected reservations based on experience and analysis periodically)                         | 4.19  | .800           | 150|
| Future events are analyzed                                                                                            | 4.38  | .702           | 150|

Analysis of data in the table (2) showed that the total mean of the Food and beverage yield management Practices (forecasting) was 4.33. This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that forecasting affecting food and beverage yield management implementation. It was also clear that the mean value 4.38 was the greatest one among the other values. This value was related to the point that Future events are analyzed. The Food and Beverage management taking in consideration Future events to be analyzed to be suitable for implementing the yield management in the department. It was noticed that the slandered deviation (.822) is
less than the half of the mean (2.08) it indicated that the data well distributed around the mean.

**Table 3:**

| Food and beverage yield management Practices (Distribution channels) | Mean   | Std. Deviation | N  |
|---------------------------------------------------------------------|--------|----------------|----|
| The position of the various distribution channels is analyzed.       | 4.34   | 0.654          | 150|
| The most cost-effective channels are selected.                      | 4.25   | 0.813          | 150|
| Customers can reserve online through the hotel's website.           | 4.35   | 0.752          | 150|
| Competitive pressures from other hotels and different distribution channels are quickly responding. | 4.51   | 0.663          | 150|

Analysis of data in the above table showed that the total mean of the Food and beverage yield management Practices (Distribution channels) was 4.36. This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that Culture affecting food and beverage yield management implementation. it was also clear that the mean value of 4.51 was the greatest one among the other values. This value was related to the point that Competitive pressures from other hotels and different distribution channels are quickly responding. Also, it was noticed that the standard deviation (.712) is less than half of the mean (2.13). 

**Table 4**

| Food and beverage yield management Practices (Updating limits, reservations, and sales) | Mean   | Std. Deviation | N  |
|---------------------------------------------------------------------------------------|--------|----------------|----|
| Updated information is on hand on the number of seats available.                      | 4.46   | 0.662          | 150|
| Upselling and cross-selling are practiced                                               | 4.35   | 0.820          | 150|
| The restaurant overbooking. Well managed                                               | 4.20   | 0.819          | 150|
| Reservations are accepted or denied depending on: (Season-Reservation Volume-Service duration) | 4.20   | 0.851          | 150|
| Rates are opened and closed depending on demand-side forecasts                         | 4.28   | 0.844          | 150|
| Rates can be changed simultaneously in all channels                                   | 4.21   | 0.892          | 150|
| Lower rates cannot be found on other organizations’ websites                           | 4.05   | 1.019          | 150|

Analysis of data in the above table showed that the total mean of the Food and beverage yield management Practices was 4.25. This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that Updating limits, reservations, and salesaffecting food and beverage yield management implementation. it was also clear that the mean value of 4.46 was the greatest one among the other values. This value was related to the point that Updated information is on hand on the number of seats available too important for Food and Beverage yield management. It was noticed that the standard deviation (.844) is less than half of the mean (2.13). 

**Table 5**

| Food and beverage yield management Practices (Pricing) | Mean   | Std. Deviation | N  |
|-------------------------------------------------------|--------|----------------|----|
| Both the F&B manager sales and the revenue management departments are responsible for pricing | 4.32   | 0.972          | 150|
| Differential pricing for F&B menu is in place          | 4.17   | 0.841          | 150|
| Diverse rates are applied to various market segments    | 4.12   | 0.897          | 150|
| Restrictive criteria or barriers are applied to the lowest rates | 4.09   | 0.870          | 150|
| Package deals (restaurant seats plus other services) are offered | 3.99   | 1.033          | 150|
| Seats are differentiated by installing facilities that entail no extra cost of any significance | 4.16   | 1.017          | 150|
| Costs, demand, competition, and distribution channels are taken into consideration in pricing | 4.43   | 0.806          | 150|
Agreements with tour operators and corporate accounts contain provisions for varying rates  
| The BAR (best available rate) model is used | 4.38 | 0.800 | 150 |
| Pricing parity is in place in all distribution channels | 3.83 | 1.032 | 150 |
| Information on the highest/lowest rate applied is available | 4.25 | 0.697 | 150 |
| Discounts are subject to compliance with pre-established requirements | 4.42 | 0.668 | 150 |
| The effect of local events is taken into consideration when revising rates | 4.47 | 0.692 | 150 |

Analysis of data showed that the total mean of the Food and beverage yield management Practices (pricing) was 4.33. This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that pricing affecting food and beverage yield management implementation. Also, it was clear that the mean value of 4.47 was the greatest one among the other values. This value was related to the point that the effect of local events is taken into consideration when revising rates and this helping implementing the yield management in the department. From the above table noticed that the standard deviation (.881) is less than half of the mean (2.10) it indicated that the data well distributed around the mean.

Table 6
Food and beverage yield management Practices (Analysis of Competition)

| Food and beverage yield management Practices (analysis of competition) | Mean  | Std. Deviation | N  |
|-------------------------------------------------------------------------|-------|----------------|----|
| Competitors are identified                                              | 4.47  | 0.682          | 150|
| The hotel’s position is determined                                      | 4.50  | 0.712          | 150|
| Competitive advantage (location, price, marketing strategies) held by competitors | 4.47  | 0.652          | 150|
| Competitors’ pricing strategies are analyzed with rate shopping and benchmarking tools | 4.45  | 0.661          | 150|
| Market penetration index (MPI) well defined                            | 4.23  | 0.772          | 150|
| The segments sourced from distribution channels                         | 4.34  | 0.674          | 150|
| More than market segments are defined                                   | 4.47  | 0.682          | 150|
| Each market segment's contribution to profit                            | 4.47  | 0.682          | 150|

Analysis of data showed that the total mean of the Food and beverage yield management Practices (analysis of competition) was 4.42. This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that Analysis of Competition affecting food and beverage yield management implementation.it was also clear that the mean value of 4.50 was the greatest one among the other values. This value was related to the point that the hotel’s position is determined.

Table 7
Food and beverage yield management Practices (Evaluation)

| Evaluation                                                                 | Mean  | Std. Deviation | N  |
|-----------------------------------------------------------------------------|-------|----------------|----|
| The profits resulting from applying YM are evaluated on the grounds of variables such as number of covers, average check, or Rev PASH | 4.35  | 0.667          | 150|
| Results are reviewed daily                                                  | 4.37  | 0.823          | 150|
| Real and budget figures are compared                                        | 4.50  | 0.792          | 150|
| Deviations are analyzed                                                     | 4.43  | 0.847          | 150|
| Incentives are in place to encourage reservation                           | 4.30  | 0.961          | 150|

Analysis of data showed that the total mean of the Food and beverage yield management Practices (Evaluation) was 4.39 This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that (Evaluation) affecting food and beverage yield management implementation. it was also clear that the mean value of 4.50 was the greatest one among the other values. This value was related to the point that Real and budget figures are compared. Also noticed that the standard deviation (.689) is less than half of the
mean (2.20) it indicated that the data well distributed around the mean.

**Table 8**

Food & Beverage yield management obstacles

| Obstacles                                                                 | Mean  | Std. Deviation | N  |
|--------------------------------------------------------------------------|-------|----------------|----|
| Lack of understanding of yield management process by F&B managers         | 4.18  | 0.844          | 150|
| Shortage of professional F&B department staff.                           | 4.05  | 1.022          | 150|
| Lack of integration between information and data system                  | 4.11  | 0.952          | 150|
| Lack of integral yield management culture.                               | 3.97  | 1.064          | 150|
| Lack of historical data in F&B department.                               | 4.07  | 0.994          | 150|
| Lack of historical data in F&B department.                               | 4.03  | 0.993          | 150|

Analysis of data showed that the total mean of the Food and beverage yield management (obstacles) was 4.07 This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that (obstacles) affecting food and beverage yield management implementation. it was also clear that the mean value of 4.18 was the greatest one among the other values. This value was related to the point that Real and budget figures are compared. Also noticed that the standard deviation (.840) is less than half of the mean (2.04) it indicated that the data well distributed around the mean.

**Table 9**

The profitability

| Profitability                                                                 | Mean  | Std. Deviation | N  |
|------------------------------------------------------------------------------|-------|----------------|----|
| Improve average of tables’ capacity.                                         | 4.20  | 0.835          | 150|
| Increase average of chairs turn over.                                        | 4.21  | 0.729          | 150|
| Better demand on all food menu items.                                        | 4.28  | 0.752          | 150|
| Enhance average of guest satisfaction.                                       | 4.51  | 0.702          | 150|
| Increase expenses control.                                                   | 4.52  | 0.610          | 150|
| Maximize food and beverage sales.                                            | 4.59  | 0.656          | 150|
| Maximizing profits by using information about buying behaviour and sales to create pricing and inventory controls. | 4.44  | 0.650          | 150|
| Ameliorate food and beverage average check.                                  | 4.43  | 0.649          | 150|
| Focusing on big market segment to maximize F&B sales.                        | 4.53  | 0.599          | 150|
| Focusing on the best pricing strategy and to set the optimal service rate in order to maximize revenues | 4.47  | 0.620          | 150|
| Enable to choose the most profitable customers through forecasting of demand and a deep study of consumer behaviour. | 4.47  | 0.682          | 150|
| Explicit recognition of variable costs and price optimization.               | 4.32  | 0.771          | 150|
| Improve the F&B department image and reputation.                            | 4.35  | 0.714          | 150|
| Improve F&B staff flexibility and motivation.                               | 4.47  | 0.610          | 150|
| Speed of future up decision- making processes.                              | 4.55  | 0.608          | 150|
| ability to control rates is dependent on correct predictions the patterns of demand | 4.45  | 0.619          | 150|

Analysis of data showed that the total mean of the Food and beverage yield management (profitability) was 4.42 This value was limited between two values {strongly agree (5) and agree (4)} and it was nearer to the value (agree). This indicated that (profitability) affecting food and beverage yield management implementation. it was also clear that the mean value of 4.59 was the greatest one among the other values. This value was related to the point that Real and budget figures are compared. Also noticed that the standard deviation (.675) is less than half of the mean (2.21) it indicated that the data well distributed around the mean.

**4.2 Testing the first hypothesis:**

The first hypothesis is: There is a statistically significant relation between yield management practices in the F&B department and profitability.
Table 10

Model summary of the first hypothesis

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|---------------------------|
| 1     | 0.706 | 0.499    | 0.471             | 0.34528                   |

a Predictors: (Constant), evaluation mean, Culture, budgeting, updating, distribution, competition, pricing, forecasting.

Using regression analysis to measure the relation between yield management practices in the food and beverages department, and profitability revealed that the independent variable explains (0.499) of the variance in the dependent variable due to (R square value = 49.9%).

Table 11

ANOVA analysis of the first hypothesis.

| Model   | Sum of Squares | Df  | Mean Square | F       | Sig.  |
|---------|----------------|-----|-------------|---------|-------|
| Regression | 16.752         | 8   | 2.094       | 17.564  | .000b |
| 1 Residual | 16.810         | 141 | .119        |         |       |
| Total   | 33.562         | 149 |             |         |       |

b. Dependent Variable: profitability

Predictors: (Constant), evaluation mean, Culture, budgeting, updating, distribution, competition, pricing, forecasting. According to the above analysis, it was clear that the ANOVA test revealed the value of (F) was (17.564) and (p<0.05) referring to a significant effect of the independent variable on the dependent one.

Table 12) Coefficient of the study hypothesis

| Model               | Unstandardized Coefficients | Standardized Coefficients | T     | Sig.  |
|---------------------|-----------------------------|---------------------------|-------|-------|
|                     | B      | Std. Error | Beta  |       |       |
| (Constant)          | 1.173  | 0.296      |       | 3.956 | 0.000 |
| H1. Distribution    | -.013  | 0.089      | -.014 | -.150 | .881  |
| H2. Updating sales  | .075   | 0.078      | .084  | 0.958 | .340  |
| H3. Pricing         | .281   | 0.094      | .294  | 2.973 | .003  |
| H4. Budgeting       | -.041  | 0.058      | -.053 | -.700 | .485  |
| H5. Competition analysis | 0.294 | 0.082      | 0.324 | 3.561 | .001  |
| H6. Forecasting     | 0.082  | 0.096      | 0.087 | 0.861 | .391  |
| H7. Culture         | 0.000  | 0.057      | 0.000 | -.003 | .997  |
| H8. Evaluation      | 0.080  | 0.055      | 0.107 | 1.439 | .152  |

Dependent Variable: profitability

Furthermore, the two variables of yield management practices in the F & B department, in five-star hotels have a great influence on profitability. It is found that pricing significantly affects profitability (b= .281, and p<0.05). As a result, H3is supported. Also, competition significantly affects profitability (b=0.294, and p<0.05). Thus, H3 is also supported, and the alternative hypothesis was accepted, and the null hypothesis was rejected. On the contrary, as shown in the previous table, the other (six) variables of yield management practices in the F & B department, in five-star hotels don’t significantly affect profitability. Accordingly, H1, H2, H4, H6, H7&H8 are not proven. And the alternative hypothesis was rejected, and the null hypothesis was accepted.

5. Conclusion and recommendations

The effect of implementing yield management in the food and beverage department on the profitability of the department was investigated, it is found that pricing significantly affects profitability. Also, competition significantly affects profitability. On the contrary, the other (six) variables of yield management practices in the F & B department, in five-star hotels don’t significantly affect profitability.

5.1 Recommendations to hotel management

- Human resource department should recruit and hire the best enthusiast, reliable and talented candidates for F&B department with a continuous and ambitious training plan for them in revenue management and offering them a motivation plan.
- The hotel management should work in using highly advanced information technology.
system, by providing infrastructure like a modern PC system, updated software programs such as (IDeaS) for effective pricing, (advanced reservation) and forecasting programs, and an integrated (CRM) customer relationship management system to be available.

5.2. Recommendations to food and beverage managers

- Set menu management as a top priority to maximize your department revenue by organizing your menu based on profit and popularity (menu engineering), add the profitable dishes to the golden triangle, keep your menu lean and implement menu rotation.
- Use a mobile service table and open your restaurant 7 days a week if there is a market
- Keep customers engaged digitally through marketing channels
- Use booking management properly through the new generation of software to manage demand and supply.

5.3. Recommendations to Revenue Managers

- The revenue manager must create and develop effective pricing strategies in line with the market mechanism and work on targeting different market segments to achieve the largest possible revenues to enhance the department’s profit.
- The hotel revenue manager has to give accurate data about the market, expectations, expected reservations, and the prices of the competitors of the Food & Beverage manager to help him to perform a distinctive performance to manage the department’s revenue and increase revenue and maximize profits.

References

Aznar, J. P., Bagur, L., & Rocafort, A. (2016). Impact of service quality on competitiveness and profitability: The hotel industry in the Catalan coast. Intangible Capital, 12(1), 147-166.

Borchgrevink, C. P., & Anchill D. M. (2003). Beverage control system and the guest’s perspective: standardization and value. Journal of Hospitality & Leisure Marketing, 10(1-2), 151-159.

Cross, R. G., Higbie, J. A., & Cross, Z. N. (2011). Milestones in the application of analytical pricing and revenue management. Journal of Revenue and Pricing Management, 10(1), 8-18.

Dickson, D. R., & Choi, Y., (2009). A case study into the benefits of management training programs: Impacts on hotel employee turnover and satisfaction level. Journal of Human Resources in Hospitality & Tourism, 9(1), 103-116.

Fiori, A. M., & Foroni, I. (2020). Prediction accuracy for reservation-based forecasting methods applied in Revenue Management. International Journal of Hospitality Management, 84, 102332.

Horwath, H. T. L. (2017). European Hotels & Chains Report 2017. Retrieved November, 20, 2017.

Huang, Y. H., Verma, S. K., Lombardi, D. A., Chang, W. R., Courtney, T. K., Brennan, M. J., ... & Perry, M. J. (2011). Rushing, distraction, walking on contaminated floors and risk of slipping in limited-service restaurants: a case–crossover study. Occupational and Environmental Medicine, 68(8), 575-581.

Ivanov, S. (2014). Hotel revenue management: From theory to practice. Zangador.

Jones, T. F., & Grimm, K. (2008). Public knowledge and attitudes regarding public health inspections of restaurants. American Journal of Preventive Medicine, 34(6), 510-513.

Kim, E., & Ham, S. (2016). Restaurants’ disclosure of nutritional information as a corporate social responsibility initiative: Customers’ attitudinal and behavioral responses. International Journal of Hospitality Management, 55, 96-106.

Kimes, S. E. (2008). The role of technology in restaurant revenue management. Cornell Hospitality Quarterly, 49(3), 297-309.

Kimes, S. E. (2010). Strategic pricing through revenue management. Journal of Revenue and Pricing Management.

Kimes, S. E., & Chase, R. B. (1998). The strategic levers of yield management. Journal of Service Research, 1(2), 156-166.

Kwok, L. (2012). Exploratory-triangulation design in mixed methods studies: A case of examining graduating seniors who meet hospitality recruiters’ selection criteria. Tourism and Hospitality Research, 12(3), 125-138.

Lado-Sestayo, R., & Vivel-Búa, M. (2018). Profitability in the hotel sector: a PLS approach. Journal of Hospitality and Tourism Technology, 9(3), 455-470.

Lieberman, W. H. (2011). Practical pricing for the hotel industry. In Revenue Management (pp. 180-191). Palgrave Macmillan, London.

Makki, A. M., Singh, D., & Ozturk, A. B. (2016). Hotel Tonight usage and hotel profitability. Journal of Hospitality and Tourism Technology.

Martin-Fuentes, E., & Mellinas, J. P. (2018). Hotels that most rely on Booking.com—online travel agencies (OTAs) and hotel distribution channels. Tourism Review.

Mattila, A. S. (2006). How effective commitment boosts guest loyalty (and promotes frequent-guest programs). Cornell Hotel and Restaurant Administration Quarterly, 47(2), 174-181.

McCracken, S. (2018). Hotel sales and marketing trends
to watch in 2019.

Pan, C.M. (2005) Market structure and profitability in the international tourist hotel industry. Tourism Management, 26(6), 845-850.

Parsons, L. J. (2002). Using stochastic frontier analysis for performance measurement benchmarking. Advances in Economics, 16, 317-350.

Sahut, J. M., Hikkerova, L., & Pupion, P. C. (2016). Perceived unfairness of prices resulting from yield management practices in hotels. Journal of Business Research, 69(11), 4901-4906.

Sandvik, I.L., Duhan, D. F., & Sandvik, K. (2014). Innovativeness and profitability: An empirical investigation in the Norwegian hotel industry. Cornell Hospitality Quarterly, 55(2), 165-185.

Selmi, N. (2010). Effects of culture and service sector on customers’ perceptions of the practice of yield management. International Journal of Studies in Marketing, 2(1), 245.

Talón-Ballestero, P., González-Serrano, L., & Figueroa-Domecq, C. (2014). A model for evaluating revenue management implementation (MERMI) in the hotel industry. Journal of Revenue and Pricing Management, 13(4), 309-321.

Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From multi-channel retailing to Omni-channel retailing: introduction to the special issue on multi-channel retailing. Journal of Retailing, 91(2), 174-181.

Viglia, G., & Abrate, G. (2019). Revenue and yield management: a perspective article. Tourism Review.

Webb, T., Schwartz, Z., Xiang, Z., & Singal, M. (2020). Revenue management forecasting: The resiliency of advanced booking methods given dynamic booking windows. International Journal of Hospitality Management, 89, 102590.

Xiang, Z., & Law, R. (2013) online competitive information space for hotels and information search perspective Journal of Hospitality Marketing & Management, 22(5), 530-546.

Yang, Y., & Leung, X.Y. (2018) a better last-minute hotel deal via app? Cross-channel price disparities between Hotel Tonight and OTAs Tourism Management, 68, 198-209.

Zaki, K., & Quora, O. (2019). Profitability in Egyptian hotels: business model and sustainability impact. Research in Hospitality Management, 9(2), 89-97.