ANALYZING THE EGYPTIAN HOTEL CAPACITY: AN EXPLORATORY STUDY

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ABSTRACT

The decline in hotel capacity, due to local and international crises, is a critical problem in the hospitality industry. Consequently, the aim of this research is to investigate the existing and potential hotel capacity in all Egyptian destinations for managing hotel capacity effectively. So, the descriptive approach was adopted in this research. Primary data collection involved the official data of the ministry of tourism in Egypt (The 34th edition of Egyptian hotel guide 2015-2016). The analysis included all fixed hotels (898) in all Egyptian destinations (41 cities). The results reveal that the growth rate of hotels, rooms, and beds is negative, as it is decreased by 24.79, 5.48, and 7.65 % respectively. The lack of one fixed hotel leads to a shortage of 19 rooms and 50 beds. Also, the research stated that the distribution of hotels and rooms (Sig. 0.00) is not normal across the categories of tourist destinations using the test of Kolmogorov-Smirnov Z. The distribution of hotels (Sig. 0.003) and rooms (Sig. 0.007) is not the same across the categories of hotel stars using the test of Kruskal–Wallis. In addition, there is a statistically significant relationship between hotels and rooms in tourist destinations (r = 0.963, Sig. 0.00) at the 0.01 level (2-tailed). There is a significance regression model between hotels (X) and rooms (Y) (r = 0.864, Sig. 0.004) at the 0.05 level, which the model is $\hat{Y} = -268.403 + 273.075X$. Most hotels are distributed in the cities of Sharm El Sheikh 20.04 % (180 hotels), Cairo 17.26 % (155), Hurghada 16.26 % (146), Marsa Alam 5.46 % (49) and Alexandria 4.9 % (44). Finally, this research has presented some recommendations for investors and decision-makers in the ministry of tourism for suitable investment in the Egyptian tourism industry.

KEYWORDS: HOTEL Capacity, Local & International Crises, Existing & potential Capacity.

INTRODUCTION

Hotels are the most vital establishments that are directly related to the capacity of the hospitality industry. Therefore, the high rate of the growth of international tourists has been accompanied by rapid development in hotel capacity (Zaytoun, et al., 2010). Hotels are the most important differing and vibrant economic activities (Thulemark, et al., 2014). They boost financial development (AHLA, 2015) as they are the most important super-structural elements of a tourism destination. Moreover, hotels clearly affect both the competitiveness and the overall improvement of the tourist destination (Attila, 2016). Overall, the hotel industry has been one of the most competitive businesses particularly within the 21st century (Mubiri, 2016). However, it is one of the sectors that are mostly influenced by international and domestic economic crises.

Egypt has suffered from many local and international crises such as the global financial crisis in 2008, the revolution of 25 January in 2011, the revolution of 30th June in 2013, and the Russian plane crash in 2015. These crises negatively affected the tourism and hospitality industry on both the demand and supply sides (Mohamed, 2016). Demand downturn, in particular, is a serious issue that threatens the hotel industry in many destinations (Mohamed, et al., 2016). Many studies have dealt with demand-side analysis (Zaytoun, et al., 2010, Colliers Internationals, 2013, Rajab, 2013, Mohamed, et al 2016, and Mohamed, 2016), while there are limited studies that dealt with supply-side (Zaytoun, et al., 2010). Moreover, the examination of the tourist statistics in Egypt shows a distinction within the total number of hotels between the years 2016 and 2008. This contrast is approximately -135 hotels. Such a negative growth rate reflects that 135 hotels have closed permanently. Therefore, there is a critical challenge in the future of the Egyptian tourism investment. Therefore, this research is concerned with the analysis of the existing and potential hotel capacity in all Egyptian destinations for managing the hotel capacity effectively.

LITERATURE REVIEW

The tourism and hospitality industry was extremely influenced by local and international crises. A crisis can be defined as a sudden turning point that results in an imbalance or interruption of some or all of the vital functions of society (Salem, 2005); as it is accompanied by a rapid decline in events that leads to undesirable consequences (Laws, 2006). In tourism, a crisis is any threat that limits the natural flow of tourism to the target country in any form of threat (Henderson, 2006). For example, Egypt has suffered from local and international crises, which have negatively affected

the tourism and hospitality sector. In 2008, the worldwide economic crisis has a widespread negative effect on hotel occupancy, hotel revenues, and liquidity (Zaytoun, et al., 2010). In 2011, the January revolution decreased the number of tourists by 33.2% to reach 9.8 million in 2011 compared to 2010, when the number of tourists reached 14.7 million, and the number of tourist nights decreased by 22.5% (Rajab, 2013). Moreover, the rates of unemployment expanded and the different tourism companies went bankrupt. In 2012/2013, the total overnight stays (53 million) decreased by -0.2%, a total of hotel occupancy (49.6 %) decreased by -4.5% as a growth rate (Colliers Internationals, 2013). Also, the revolution of 30 June in 2013 resulted in a decrease in the number of tourists and tourist nights by 17.9%, -13.5%, respectively (Rajab, 2013).

In 2015/2016, the number of hotels and tourist villages during the crisis period is continuously declining and it is expected that their numbers will decrease further in 2015/2016 due to the continued negative effects of the crisis on the hotel sector in a large way. In detail, there are more than 40 hotels closed in Nuweiba and Taba in South Sinai and 27 hotels in Marsa Alam in the Red Sea, in addition to more than 250 hotels actually stopped working during the past two years (Shuwaikhi, 2015). In addition, the number of workers declined, especially in the sector of floating hotels (Central Agency for Public Mobilization and Statistics, 2015). Moreover, some hotels and tourist companies dispense with employment, and reduce permanent labor wages by a total of 70 million pounds, in addition to the migration of 70% of the qualified labor due to the low tourism revenues. However, the current tourism employment is not sufficiently trained. About 40% from 3.5 million workers in the tourism sector were dispensed or reducing wages (Zaatar and Al-Shafei, 2015). This constitutes about 1.8 million of direct workers and the rest indirect labor (Ministry of Tourism, 2015). Operationally, the service q quality of the hotel decreased due to a lack of hotel revenues, and the high cost of operation. So, hotels were unable to implement development and replacement operations. This affected the level of competitiveness and the quality of services provided to customers (Shuwaikhi, 2015).

Egypt faced a series of crises in 2015, such as terrorist bombings, Farafra accident, and a Russian plane crash. These crises resulted in a decrease in the number of tourists in 2015 to reach 9.3 million tourists, a decrease of -5.6% from 2014, as well as a decrease in the number of tourist nights by -13.5% (General Mobilization and Statistics, 2015). One of the reasons that led to this decline is that some countries, such as Russia and Britain, have suspended flights to Egypt (Egyptian Ministry of Tourism, 2016). This

impact continued until 2016, when the number of tourists decreased from 2.15 million to 1.1 million tourists during the first quarter of 2016, with a decrease rate of (46.5%). The number of tourist nights decreased during the first quarter of 2015 from 20 million to 6.9 million tourist nights. Only during the same period of the year 2016, Egypt witnessed a huge decline estimated at -65 .5% (General Mobilization and Statistics, 2016).

In general, on the level of hotels and tourism companies, a study was conducted and identified some of the negative effects resulting from the crises that Egypt has recently experienced. About 87 % of these organizations stated that negative effects include canceling contracts with tour operators, followed by a decrease in the percentage of approved works 82%, then a decrease in revenues and increased costs 74%, while 69% unanimously agreed that the negative effects on employment come forth. In addition, the negative impact on tourism investment 65%, and the low quality, and competitive services 46% (Mohamed, 2016). Concerning the supply side in Egypt, the total number of hotels was reported at 1031 hotels in 2016. This records a decrease from the previous number of 1034 hotels for 2015. The data reached an all-time high of 1485 hotels in 2004 and a record low of 263 hotels in 1982. For hotel rooms, the total number of rooms was reported at 108265 rooms in 2016. This records an increase from the previous number of 108112 rooms for 2015. The data reached an all-time high of 165141 rooms in 2014 and a record low of 18100 rooms in 1982 (CEIC, 2016). In conclusion, the crises led to weak occupancy rates, lower margins for benefits, increased layoffs and decreased quality of service and product (Salman, et al, 2017).

International crises have affected various countries in the tourism sector, yet there are some attempts to address those impacts. A case study of Shanghai city, the management of overcapacity includes a focus on apartment hotels or a timeshare system instead of building upscale hotels. In addition, take advantage of international exhibitions to promote itself as a destination for conference tourism in the world (Gu, et al., 2011). However, hotel capacity management might be clarified as a difficult activity for managers because the number of rooms cannot be changed concurring to demand. So, adjust the capacity to fulfill demand is a major concern for managers in the hospitality industry (Albert et al. 2015). In New Zealand, there is a critical shortage of hotel rooms during high demand periods. Exceptionally solid development in hotel demand within the past three years combined with minimal change in new hotel inventory has resulted in a critical shortage of hotel rooms during high demand periods (Colliers Internationals, 2016). In the USA, In spite of the fact that the Great Recession affected travel, particularly by U.S. inhabitants, in

general visitation to New York City has recovered significantly since at that point, reaching record levels in 2016. Particularly, guests to New York City developed from 47 million in 2007 to 60.7 million in 2016, an increase of nearly 30 percent for the period (NYC, 2017). The two vital components that empower hotels to distinguish themselves are great areas for the relative target market and quality of service (Cheng, 2013). Therefore, expanding competition within the hotel market may be a great challenge for hotel managers. So, guaranteeing the survival and success of a hotel by actualizing what will fulfill stakeholder desires within the future. (Albert et al. 2015). Effective capacity management leads to improved performance in the operations within the organization and good relationships with its stakeholders. The practices of inventory management, price management, capacity outsourcing, and capacity forecasting had a strong positive relationship with service industry performance, and an organizations' capability to have a greater output or value- addition (Onyango, 2016). For meeting current and future demand if the 20 million visitor target is reached, the investment is continued in restaurants, shops, and other similar assets in Egypt. Today, the great challenge for hotels is to maintain profits during a time of stifling macroeconomic development, declining government revenues, and expenditures, and rising opportunity rates (Oxford Business Group, 2018).

METHODOLOGY

This research investigates the existing and potential hotel capacity and its growth rate in terms of total number of hotels and total number of rooms according to hotel stars and tourist destination in order to highlight the characteristics of hotel capacity and its growth rate to the effectiveness of the management of the hotel capacity by the ministry of tourism. So, the descriptive approach was adopted in this research. Primary data collection involved the official data of the ministry of tourism in Egypt (The 34th edition of Egyptian hotel guide 2015-2016). The analysis included all fixed hotels (898) in all tourist destinations (41 cities). To achieve the research aim; this research has the following hypotheses;

H1: The distribution of hotels is the same across categories of hotel stars.
H2: The distribution of rooms is the same across categories of hotel stars.
H3: The distribution of hotels is normal across categories of tourist destinations.
H4: The distribution of rooms is normal across categories of tourist destinations

.H_5: There is a statistically significant relationship between hotels and rooms in tourist destinations.

H_6: There is a statistically significant regression between hotels and rooms in tourist destinations.

DATA ANALYSIS, RESULTS AND DISCUSSION

1. THE EXISTING CAPACITY OF HOTELS

1.1. THE GROWTH RATE OF HOTELS

Table (1) displays the development of hotel capacity for the categories of fixed and floating hotels in terms of the total number of hotels, the total number of rooms, and the total number of beds from 2004 to 2015 to discover its growth rate.

Table (1): The Total Number of Hotels, Rooms, and Beds from 2004 to 2015.

Year	Fixed Hotels			Floating Hotels		
	Hotels	Rooms	Beds	Hotels	Rooms	Beds
2004	1307	111428	211803	178	10034	19450
2005	1278	116151	218283	164	9915	19035
2006	1273	126421	237768	149	8895	17407
2007	1280	133624	249414	149	9187	17564
2008	1230	131476	242831	216	12456	23906
2009	1283	148456	278294	194	11586	22521
2010	1239	141186	260013	194	11895	22559
2011	1201	131431	237998	120	8335	16032
2012	1140	125237	231984	83	5059	9708
2013	1144	135777	250454	49	2766	5167
2014	1090	161396	293926	34	3745	7057
2015	983	105318	195605	51	2794	5339

According to the table (1), the total number of fixed hotels continues to decline from year to another. It starts with 1307 hotels in 2004 to end with 983 hotels in 2015 by a decrease of 107 hotels. So, the growth rate of fixed hotels decreased by 24.79 % (equals 324 hotels). This decline is due to several factors, including the global economic crisis in 2008 (Zaytoun, et al., 2010), the revolution of January 25 in 2011 (Mohamed, 2016; Mohamed, et al., 2016) and the revolution of July 30, 2013 (Rajab, 2013; Colliers Internationals, 2013), and the downfall of the Russian plane in 2015 (Egyptian Ministry of Tourism, 2016). Generally, the growth rate of

fixed hotels is negative as shown in figure (1). In 2015, the total number of rooms (105318) decreased by 6110 rooms compared to 2004 (111428). Consequently, the growth rate of rooms is decreased by 5.48% (equals 6110 hotels); this means that the growth rate of rooms is negative as shown in figure (2). Regarding the beds, the total number of beds starts with 211803 beds in 2004 and ends with 195605 beds in 2015, this means that the growth rate is decreased by 7.65 % (equals 16198 beds). In conclusion, the lack of one hotel leads to a shortage of 19 rooms and 50 beds.
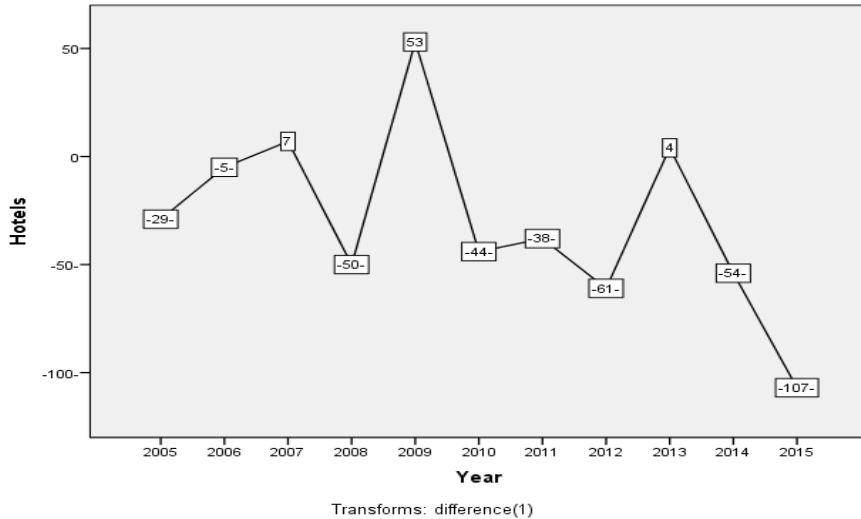

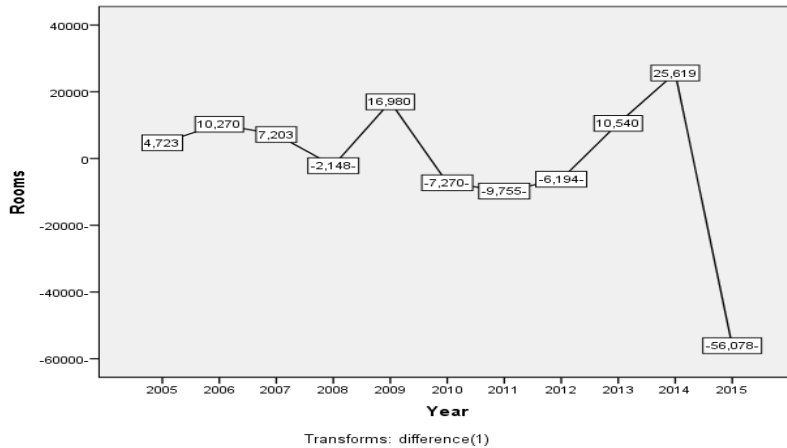**Figure (1): The Growth Rate of Fixed Hotels.**

Figure (2): The Growth Rate of Fixed Hotels' Rooms.

The total number of floating hotels starts with 178 hotels in 2004 to end with 51 hotels in 2015. The growth rate of floating hotels decreased by 71.35 % (equals 127 floating hotels). This means that the growth rate of floating hotels is negative as shown in figure (3). This decrease is due to the local and global crises in which Egypt was exposed from 2011 to 2016. In 2015, the total number of rooms (2794) decreased by 7240 rooms compared to 2004 (10034). Consequently, the growth rate of rooms is decreased by 72.15%; this means that the growth rate of rooms is negative as shown in figure (4). Regarding the beds, the total number of beds starts with 19450 beds in 2004 and ends with 5339 beds in 2015, this means that the growth rate is decreased by 72.55 % (equals 14111 beds). Based on the above analysis, it can be said that the lack of one floating hotel leads to a shortage of 57 rooms and 111 beds.
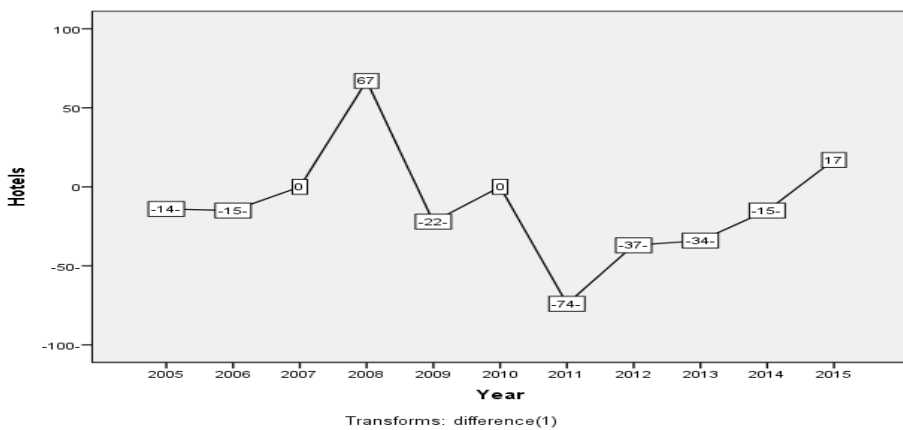

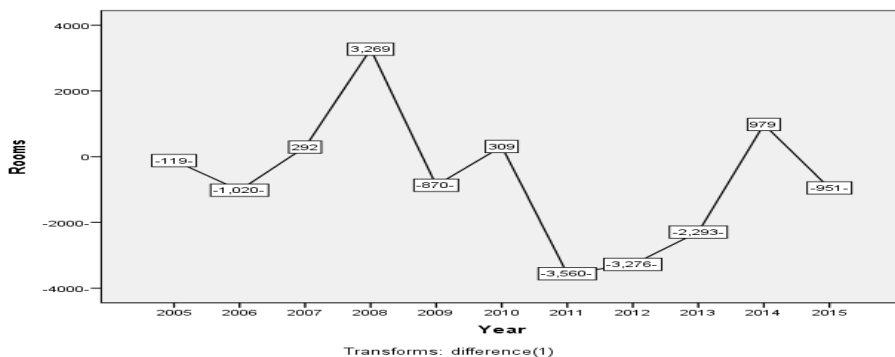**Figure (3): The Growth Rate of Floating Hotels.**

Figure (4): The Growth Rate of Floating Hotels' Rooms.

1.2. THE DESCRIPTIVE STATISTICS OF HOTEL CAPACITY

Table (2): The Descriptive Statistics of Hotel Capacity from 2004 to 2015

Statistics		Fixed Hotels			Floating Hotels		
		Hotels	Rooms	Beds	Hotels	Rooms	Beds
Mean	Statistic	1204	130658.4	242364.4	131.8	8055.6	15478.8
	SE	28.1	4504.5	7893.6	18.3	1027	1986.5
Median	Statistic	1234.5	131453.5	240414.5	149	9041	17485
Mode	Statistic	983	105318	195605	149	2766	5167
Variance	Statistic	9482.4	243491014.5	747696687.9	4005.5	12657052.8	47355105.1
Standard Deviation (SD).	Statistic	97.4	15604.2	27344	63.3	3557.7	6881.5
Skewness	Statistic	-1.174	0.268	0.234	-0.397	-0.481	-0.503
	SE	0.637	0.637	0.637	0.637	0.637	0.637
Kurtosis	Statistic	0.915	0.221	0.150	-1.356	-1.326	-1.330
	SE	1.232	1.232	1.232	1.232	1.232	1.232
Max	Statistic	1307	161396	293926	216	12456	23906
Min	Statistic	983	105318	195605	34	2766	5167
Range	Statistic	324	56078	98321	182	9690	18739
Coefficient of Variance (CV)	Statistic (%)	8.1	11.9	11.3	48	44.2	44.5

Based on table (2); the mean of fixed hotels is 1204 with 97.377 as a standard deviation. The coefficient of variance equals 8. 1 %, this means that the development of hotels across 11 years is low. As for the rooms, the mean of rooms is 130658.42 with 15604.199 as a standard deviation. The coefficient of variance equals 11.9 %; this means that the development of rooms is more than hotels. In addition, the mean of beds is 242364.42 with 27344.043 as a standard deviation. The coefficient of variance is 11. 3 % and this is related to the variance coefficient of rooms. In addition, the mean of floating hotels is 131.75 with 63.289 as a standard deviation. The coefficient of variance equals 48 %; this means that the variance coefficient of floating hotels across 11 years is more than hotels. For the rooms, the mean of rooms is 8055.58 with 3557.675 as a standard deviation. The coefficient of variance equals 44.2 %; this means that the development of floating hotels' rooms is more than floating hotels. In addition, the mean of beds is 15478.75 with 6881.505 as a standard deviation. The coefficient of variance is 44.5 % and this is related to the variance coefficient of rooms. Based on this analysis, the average number of fixed hotels is higher than the floating hotels and this is consistent with Zaytoun, et al., (2010), who acknowledged that hotels are one of the most important components of the hospitality industry and directly affect its capacity.

1.3. THE EXISTING HOTEL CAPACITY BY STARS

Table (4): Hotel Capacity by Stars for Fixed and Floating Hotels.

Stars	Fixed Hotels				Floating Hotels			
	Hotels		Rooms		Hotels		Rooms	
	No.	%	No.	%	No.	%	No.	%
Five-Star Hotels	153	17.03	61915	34.55	195	72.22	12424	74.95
Four-Star Hotels	201	22.4	59190	33.03	46	17.04	2733	16.49
Three-Star Hotels	233	25.94	36477	20.36	24	8.9	1169	7.05
Two-Star Hotels	167	18.6	11579	6.46	3	1.11	109	0.66
One-Star Hotels	97	10.8	3672	2.05	0	0	0	0
Unclassified Hotels	47	5.23	6361	3.55	2	0.73	141	0.85
Total	898	100	179194	100	270	100	16576	100

Based on table (4), the total number of fixed hotels and floating hotels is 1168 as 898 for fixed hotels (76.88%) and 270 for floating hotels (23.12%). Also, the total number of rooms is 195770 as 179194 for fixed hotels (91.53%) and 16576 for floating hotels (8.47%). Fixed hotels and floating hotels are distributed across its stars as follows: 348 five-star hotels (29.79 %), 247 four-star (21.15%), 257 three-star (22.00%), 170 two-star (14.55%), 97 one-star (8.31%), and 49 unclassified hotels (4.20%) as shown in figure (5). As for rooms, 74339 for five-star hotels (37.97 %), 61923 four-star (31.63%), 37646 three-star (19.23 %), 11688 two-star (5.97 %), 3672 one-star (1.88%), and 6502 unclassified hotels (3.32%) as shown in figure (6). This means that the five-star hotels have the highest percentage of hotels and rooms; the unclassified hotels have the lowest percentage of hotels, and the one-star hotels have the lowest percentage of rooms. The fixed hotels are distributed across its stars as follows; 17.03 % five-star, 22.4 four-star, 25.94 three-star, 18.6 two-star, 10.8 one-star, and 5.23 unclassified. For rooms, 34.55 % five-star, 33.03 four-star, 20.36 three-star, 6.46 two-star, 2.05 one-star, and 3.55 unclassified hotels. This means that the three-star hotels have the highest percentage of hotels; the unclassified hotels have the lowest percentage of hotels, the five-star hotels have the highest percentage of rooms, and the one-star hotels have the lowest percentage of rooms. The floating hotels are distributed across its ranking as follows; 72.22 % five-star, 17.04 four-star, 8.9 three-star, 1.11 two-star, 0 one-star and 0.73 unclassified floating hotels. The distribution of floating hotels' rooms is 74.95 five-star, 16.49 four-star, 7.05 three-star, 0.66 two-star, 0 one-star, and 0.85 unclassified. This means that the five-star hotels have the highest percentage of hotels; the one-star hotels have the lowest percentage of hotels, the five-star hotels have the highest percentage of rooms, and the one-star hotels have the lowest percentage of rooms.
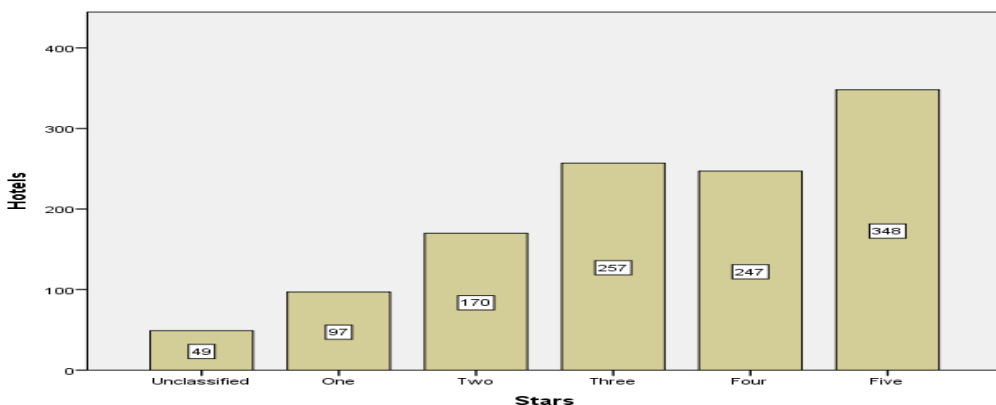

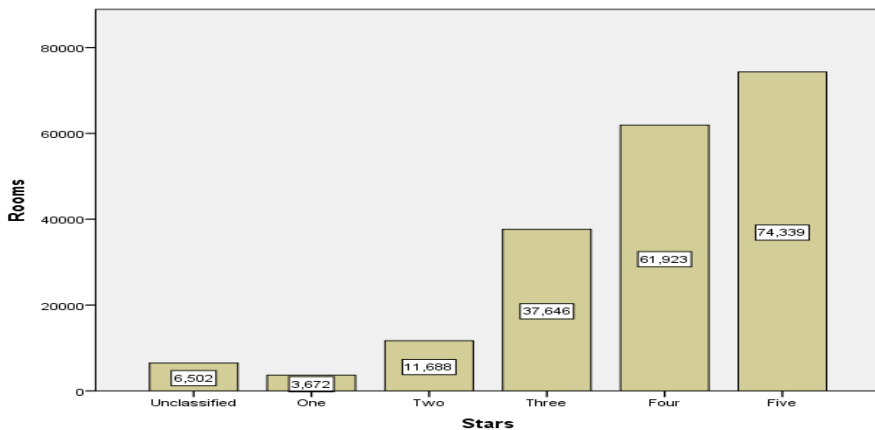**Figure (5): The Total Number of Fixed and Floating Hotels by Stars.**

Figure (6): The Total Number of Rooms for Fixed and Floating Hotels by Stars.

1.4. HOTEL CAPACITY BY TOURIST DESTINATION

This part displays the characteristics of hotel capacity for each star ranking in all tourist destinations (47 cities) as shown in table (6). The total number of five-star hotels is 153 (17.03 %), and the mean is 3.26 with an 8.234 standard deviation. The maximum is 43, and the minimum is 0. Consequently, the range of hotels is 43. The total number of five-star hotel rooms is 61915 (%), and the mean is 1317.34 with a standard deviation of 3873.32. The maximum is 20993, and the minimum is 0. Consequently, the range of rooms is 20993. The total number of four-star hotels is 200 (%), and the mean is 4.26 with a standard deviation of 11.062. The maximum is 56, and the minimum is 0. Consequently, the range of hotels is 56. The total number of four-star hotel rooms is 59017 (%), and the mean is 1255.7 with a standard deviation of 4029.1. The maximum is 20387, and the minimum is 0. Consequently, the range of rooms is 20387. The total number of three-star hotels is 234 with a mean of 4.98 (SD 10.7). The maximum is 54, and the minimum is 0. Consequently, the range of hotels is 54. The total number of three-star hotel rooms is 36650 (%) with a mean of 779.79 (SD 2124.83). The maximum is 10869, and the minimum is 0. Consequently, the range of rooms is 10869.

The total number of two-star hotels is 167 with a mean of 3.55 (SD 6.37). The maximum is 35, and the minimum is 0. Consequently, the range of hotels is 35. The total number of two-star hotel rooms is 11579 with a mean of 246.36 (SD486.6 (.The maximum is 2153, and the minimum is 0. Consequently, the range of rooms is 2153. The total number of one-star hotels is 97 with a mean of 2.06 (SD 4.9). The maximum is 32, and the

minimum is 0. Consequently, the range of hotels is 32. The total number of one-star hotel rooms is 3672 with a mean of 78.13 (SD 202.8). The maximum is 1341, and the minimum is 0. Consequently, the range of rooms is 1341. The total number of unclassified hotels is 47 with a mean of 1.00 (SD1.8). The maximum is 8, and the minimum is 0. Consequently, the range of hotels is 8. The total number of unclassified hotel rooms is 6361 with a mean of 135.34 (SD334.6). The maximum is 1857, and the minimum is 0. Consequently, the range of rooms is 1857. Depending on the above, investments in the economy hotels, which include one, two and three stars, should be increased. In addition, it is necessary to develop and improve unclassified hotels, because this would provide high tourism demand, especially domestic demand.

Table (6): The Descriptive Statistics of Fixed Hotels Capacity by Its Stars

Tests		Five Stars		Four Stars		Three Stars		Two Stars		One Stars		Unclassified	
		Hotels	Rooms	Hotels	Rooms	Hotels	Rooms	Hotels	Rooms	Hotels	Rooms	Hotels	Rooms
N	Statistic	47	47	47	47	47	47	47	47	47	47	47	47
Range	Statistic	43	20993	56	20387	54	10869	35	2153	32	1341	8	1857
Minimum	Statistic	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	Statistic	43	20993	56	20387	54	10869	35	2153	32	1341	8	1857
Sum	Statistic	153	61915	200	59017	234	36650	167	11579	97	3672	47	6361
Mean	Statistic	3.26	1317.34	4.26	1255.68	4.98	779.79	3.55	246.36	2.06	78.13	1.00	135.34
	SE	1.201	564.982	1.614	587.707	1.563	309.938	0.929	70.980	0.714	29.587	0.263	48.800
SD	Statistic	8.234	3873.322	11.062	4029.113	10.713	2124.827	6.368	486.612	4.892	202.842	1.806	334.558
Variance	Statistic	67.803	15002624.2	122.4	16233754.4	114.8	4514890.2	40.557	236791.2	23.931	41144.7	3.261	111928.97
Skewness	Statistic	3.636	3.975	3.827	4.229	3.442	3.901	3.389	3.016	5.265	5.565	2.267	3.814
	SE	0.347	0.347	0.347	0.347	0.347	0.347	0.347	0.347	0.347	0.347	0.347	0.347
Kurtosis	Statistic	13.835	16.491	14.933	17.705	11.979	15.420	13.354	8.657	31.682	34.225	5.082	16.465
	SE	0.681	0.681	0.681	0.681	0.681	0.681	0.681	0.681	0.681	0.681	0.681	0.681
Median	Statistic	0	0	0	0	2.00	118.00	1.00	75.00	1.00	29.00	0	0
Mode	Statistic	0	0	0	0	0	0	0	0	0	0	0	0

Table (7): The Characteristics of Fixed Hotel Capacity in All Egyptian Destinations.

Tests		Hotels	Rooms
N	Statistic	47	47
Mean	Statistic	19.1	3812.64
	Std. Error	5.7	1544.04
Median	Statistic	6.00	336.00
Mode	Statistic	0	0
Variance	Statistic	1526.5	112050024.5
Std. Deviation	Statistic	39.1	10585.37
Minimum	Statistic	0	0
Maximum	Statistic	180	51695
Range	Statistic	180	51695
Skewness	Statistic	3.3	3.83
	Std. Error	0.4	0.35
Kurtosis	Statistic	10.34	14.41
	Std. Error	0.7	0.7
Sum	Statistic	898	179194

Table (7) shows the descriptive statistics of fixed hotel capacity in all Egyptian destinations in terms of hotels and rooms. The total number of hotels is 898 with a mean of 19.11, and the standard deviation is 39.07. The maximum is 180, and the minimum is 0. Consequently, the range of hotels is 180. The total number of rooms is 179194 with a mean of 3812.64, and the standard deviation is 10585.37. The maximum is 51695, and the minimum is 0. Consequently, the range of rooms is 51695.

Table (8): The High and Low Destinations by Fixed Hotels in 2016.

No	High				Low			
	City	Rank	Hotels	%	City	Rank	Hotels	%
1	Sharm El Sheikh	1	180	20.04	Fayoum	17	5	0.56
2	Cairo	2	155	17.26	Siwa	17	5	0.56
3	Hurghada	3	146	16.26	St. Catherine	17	5	0.56
4	Marsa Alam	4	49	5.46	Alamein	18	4	0.45
5	Alexandria	5	44	4.9	Baharia Oasis	18	4	0.45
6	Luxor	6	36	4.01	Fayed	18	4	0.45
7	Dahab	7	26	2.9	Tanta	18	4	0.45
8	Safaga	8	24	2.67	Ismailia	19	3	0.33
9	Taba	9	19	2.12	Suez	19	3	0.33
10	Ain Sokhna	10	17	1.89	Mahalla El Kobra	20	2	0.22
11	El Gouna	10	17	1.89	Qena	20	2	0.22
12	Marsa Matrouh	11	16	1.78	Tur Sinai	20	2	0.22
13	Quseir	12	15	1.67	Beni Suef	21	1	0.11
14	Aswan	13	14	1.56	Damietta	21	1	0.11
15	El Wadi El Gadid	13	14	1.56	Sohag	21	1	0.11
16	Nuweiba	13	14	1.56	Tenth of Ramadan	21	1	0.11
17	Ras Sudr	14	12	1.34	Zagazig	21	1	0.11
18	Port Said	15	11	1.22	Bagur	22	0	0
19	Ras El Bar	15	11	1.22	Baltim	22	0	0
20	Abu Simbel	16	6	0.67	Beheira	22	0	0
21	Arish	16	6	0.67	Gamassa	22	0	0
22	Assiut	16	6	0.67	Shebin El Kom	22	0	0
23	Mansoura	16	6	0.67	Zaafarana	22	0	0
24	Menya	16	6	0.67				

Table (8) shows the high and low destinations by fixed hotels in 2016. Three cities occupied 53.56% of the total number of fixed hotels in Egypt, equivalent to 481 hotels. These cities include Sharm El Sheikh 20.04 % (180 hotels), Cairo 17.26 % (155), and Hurghada 16.26 % (146). Also, there are six cities have not any hotels such as Bagur, Baltim, Beheira, Gamassa, Shebin El Kom, and Zaafarana. Accordingly, investments should be directed towards new tourist destinations that do not own any hotel facilities.

Table (9): The High and low Destinations by Rooms in 2016.

No	High				Low			
	City	Rank	Rooms	%	City	Rank	Rooms	%
1	Sharm El Sheikh	1	51695	28.848	Fayed	25	293	0.163
2	Hurghada	2	46672	26.045	Assiut	26	280	0.156
3	Cairo	3	27016	15.076	Siwa	27	264	0.147
4	Marsa Alam	4	10858	6.059	Menya	28	254	0.141
5	Safaga	5	5799	3.236	Suez	29	251	0.14
6	Taba	6	5198	2.9	Ismailia	30	247	0.137
7	Luxor	7	4873	2.719	Fayoum	31	206	0.114
8	Alexandria	8	4179	2.332	Tanta	32	160	0.089
9	El Gouna	9	2927	1.633	Baharia Oasis	33	137	0.076
10	Quseir	10	2310	1.289	Qena	34	111	0.061
11	Marsa Matrouh	11	2248	1.254	Tur Sinai	35	82	0.045
12	Ain Sokhna	12	2114	1.179	Sohag	36	80	0.044
13	Dahab	13	2075	1.157	Mahalla El Kobra	37	68	0.037
14	Aswan	14	1792	1	Tenth of Ramadan	38	36	0.02
15	Nuweiba	15	1178	0.657	Zagazig	39	34	0.018
16	Ras Sudr	16	1161	0.647	Beni Suef	40	30	0.016
17	Alamein	17	999	0.557	Damietta	41	26	0.014
18	Port Said	18	876	0.488	Bagur	42	0	0
19	St. Catherine	19	637	0.355	Baltim	42	0	0
20	El Wadi El Gadid	20	512	0.285	Beheira	42	0	0
21	Arish	21	428	0.238	Gamassa	42	0	0
22	Ras El Bar	22	410	0.228	Shebin El Kom	42	0	0

23	Abu Simbel	23	342	0.19	Zaafarana		0	0
24	Mansoura	24	336	0.187		42		

Table (9) shows the high and low destinations by hotel rooms in 2016. Three cities occupied 69.97 % of the total number of hotel rooms in Egypt, equivalent to 125383 hotels. These cities include Sharm El Sheikh 28.85 % (51695 rooms), Hurghada 26.05 % (46672), and Cairo 15.08 % (27016). Also, there are six cities have not any hotel rooms such as Bagur, Baltim, Beheira, Gamassa, Shebin El Kom, and Zaafarana. Logically, the number of rooms is related to the number of hotels, because the increase in the number of hotels leads to an increase in the number of rooms.

2. THE POTENTIAL CAPACITY OF FIXED AND FLOATING HOTELS

Table (10): The Potential Hotel Capacity In 2016

Factors	2016			
	Hotels		Rooms	
	No.	%	No.	%
Fixed Hotels	300	100	53865	100
Floating Hotels	0	0	0	0
Total	300	100	53865	100

Table (10) shows the potential hotel capacity in 2016. The total number of fixed hotels is 300 (100%) and floating hotels 0(0%). In addition, the total number of fixed hotel rooms is 53865 (100%) and floating hotels 0(0%). Accordingly, hotel investments should be directed towards floating hotels.

Table (11): The Descriptive Statistics of Potential Hotel Capacity in 2016.

Tests		Hotels	Rooms
N	Statistic	43	43
Range	Statistic	57	11545
Minimum	Statistic	0	0
Maximum	Statistic	57	11545
Sum	Statistic	300	53865
Mean	Statistic	6.98	1252.67
	Std. Error	2.206	434.995
Std. Deviation	Statistic	14.468	2852.456
Variance	Statistic	209.31	8136504.32

Skewness	Statistic	2.090	2.523
	Std. Error	0.361	0.361
Kurtosis	Statistic	3.244	5.913
	Std. Error	0.709	0.709
Median	Statistic	0	0
Mode	Statistic	0	0

Table (11) shows the descriptive statistics of potential hotel capacity in Egyptian destinations in terms of hotels and rooms in 2016. The total number of fixed hotels is 300 with a mean of 6.98, and the standard deviation is 14.47. The maximum is 57, and the minimum is 0. Consequently, the range of hotels is 57. Also, the total number of rooms is 53865 with a mean of 1252.67, and the standard deviation is 2852.46. The maximum is 11545, and the minimum is 0. Consequently, the range of rooms is 11545.

Table (12): The Potential Hotel Capacity in 2016

No	Hotels				Rooms			
	City	Hotels	%	Rank	City	Rooms	%	Rank
1	Sharm El Sheikh	57	19	1	Sharm El Sheikh	11545	21.43	1
2	Quseir	40	13.33	2	Hurghada	11006	20.43	2
3	Ain Sokhna	36	12	3	Quseir	6147	11.41	3
4	Nuweiba / Taba	36	12	3	Ras Sudr	5491	10.19	4
5	Marsa Alam	34	11.33	4	Ain Sokhna	5289	9.82	5
6	Ras Sudr	33	11	5	Marsa Alam	5288	9.81	6
7	Hurghada	32	10.66	6	Nuweiba /Taba	5245	9.73	7
8	Cairo	11	3.66	7	Cairo	1385	2.57	8
9	Marsa Matrouh	4	1.33	8	Marsa Matrouh	894	1.65	9
10	Dahab	3	1	9	Safaga	743	1.37	10
11	Safaga	3	1	9	North Coast	291	0.54	11
12	Damietta	2	0.66	10	Dahab	150	0.28	12
13	El Wadi El Gadid	2	0.66	10	Ras El Bar	101	0.18	13
14	North Coast	2	0.66	10	El Wadi El Gadid	85	0.16	14

15	Ras El Bar	2	0.66	10	Damietta	80	0.15	15
16	Aswan	1	0.33	11	Aswan	51	0.09	16
17	El Gouna	1	0.33	11	Luxor	51	0.09	16
18	Luxor	1	0.33	11	El Gouna	23	0.04	17
19	Abu Simbel	0	0	12	Abu Simbel	0	0	18
20	Alamein	0	0	12	Alamein	0	0	18
21	Alexandria	0	0	12	Alexandria	0	0	18
22	Arish	0	0	12	Arish	0	0	18
23	Assiut	0	0	12	Assiut	0	0	18
24	Baharia Oasis	0	0	12	Baharia Oasis	0	0	18
25	Beheira	0	0	12	Beheira	0	0	18
26	Beni Suef	0	0	12	Beni Suef	0	0	18
27	Fayed	0	0	12	Fayed	0	0	18
28	Fayoum	0	0	12	Fayoum	0	0	18
29	Ismailia	0	0	12	Ismailia	0	0	18
30	Mahalla El Kobra	0	0	12	Mahalla El Kobra	0	0	18
31	Mansoura	0	0	12	Mansoura	0	0	18
32	Menya	0	0	12	Menya	0	0	18
33	Port Said	0	0	12	Port Said	0	0	18
34	Qena	0	0	12	Qena	0	0	18
35	Shebin El Kom	0	0	12	Shebin El Kom	0	0	18
36	Siwa	0	0	12	Siwa	0	0	18
37	Sohag	0	0	12	Sohag	0	0	18
38	St. Catherine	0	0	12	St. Catherine	0	0	18
39	Suez	0	0	12	Suez	0	0	18
40	Tanta	0	0	12	Tanta	0	0	18
41	Tenth of Ramadan	0	0	12	Tenth of Ramadan	0	0	18
42	Tur Sinai	0	0	12	Tur Sinai	0	0	18
43	Zagazig	0	0	12	Zagazig	0	0	18

Table (12) shows the potential hotel capacity in 2016. The highest destinations in terms of the number of targeted hotels include Sharm El Sheikh 19 % (57 hotels), Quseir 13.33 % (40), Ain Sokhna 12 % (36), Nuweiba/Taba 12 % (36), Marsa Alam 11.33 % (34), Ras Sudr 11 % (33), Hurghada 10.66 % (32), and Cairo 3.66 % (11). For the rooms, the highest

destinations include Sharm El Sheikh 21.43% (11545 rooms), Hurghada 20.43 % (11006), Quseir 11.41 % (6147), Ain Sokhna 9.82% (5289), Marsa Alam 9.81% (5288), Nuweiba/Taba 9.73 % (5245), and Cairo 2.57% (1385). Accordingly, investments in the crowded destinations of hotels should be reduced and directed to new destinations; creating a balance between the tourist destinations in hotels; and creating diversity or distinction for the Egyptian hotel product. This would support the aim of achieving 20 million tourists according to the Egypt's vision in 2030 (Oxford Business Group, 2018).

1.5. TESTING THE RESEARCH HYPOTHESES

Table (13): Testing the Research Hypotheses.

No.	Null Hypothesis	Test	Test Statistic	Degrees of Freedom	Sig.	Decision
H_1	The distribution of hotels is the same across categories of hotel stars	Independent samples Kruskal – Wallis Test	18.063	5	0.003	Reject H_0
H_2	The distribution of rooms is the same across categories of hotel stars.	Independent samples Kruskal – Wallis Test	16.041	5	0.007	Reject H_0
H3	The distribution of hotels is normal across categories of tourist destinations.	Kolmogorov-Smirnov Z	2.132	-	0.000	Reject H_0
H4	The distribution of rooms is normal across categories of tourist destinations.	Kolmogorov-Smirnov Z	2.279	-	0.000	Reject H_0

H5	There is a statistically significant relationship between hotels and rooms in tourist destinations.	Pearson Correlation	963**	-	0.000	Reject H_0

**Correlation is significant at the 0.01 level (2-tailed).

Table (13) reflects that the distribution of hotels and rooms (Sig. 0.00) is not normal across the categories of tourist destinations using the test of Kolmogorov-Smirnov Z, and the distribution of hotels (Sig. 0.003) and rooms (Sig. 0.007) is not the same across the categories of hotel stars using the test of Kruskal – Wallis. Also, there is a statistically significant relationship between hotels and rooms in tourist destinations (r = 0.963, Sig. 0.00) at the 0.01 level (2-tailed). Table (14) shows a significance regression between hotels and rooms (r = 0.864, Sig. 0.004) at the 0.05 level, which the regression model of rooms is $\hat{Y} = -268.403 + 273.075X$.

Table (14): The Regression Model between Hotels and Rooms

Items			Values
Variables	Independent		Hotels (X)
	Dependent		Rooms (Y)
R			0.864
R^2			0.746
Model	Constant (Unstandardized Coefficients)	B	-268.403
		Std. Error	93.000
	Hotels (Unstandardized Coefficients)	B	273.075
		Std. Error	10.188
Standardized Coefficients		Beta	0.864
T		Constant	-2.886
		Hotels	26.803
Sig.		Constant	0.004
		Hotels	0.000

CONCLUSIONS

Decline in hotel capacity due to local and international crises is a critical problem in the hospitality industry. Consequently, the aim of this research is to investigate the existing and potential hotel capacity in all Egyptian destinations for managing hotel capacity effectively. So, the descriptive approach was adopted in this research. Primary data collection involved the official data of the ministry of tourism in Egypt (The 34th edition of Egyptian hotel guide 2015-2016). The analysis included all fixed hotels (898) in all Egyptian destinations (41 cities). The research stated that the distribution of hotels and rooms (Sig. 0.00) is not normal across the categories of tourist destinations using the test of Kolmogorov-Smirnov Z. The distribution of hotels (Sig. 0.003) and rooms (Sig. 0.007) is not the same across the categories of hotel stars using the test of Kruskal – Wallis. In addition, there is a statistically significant relationship between hotels and rooms in tourist destinations (r = 0.963, Sig. 0.00) at the 0.01 level (2-tailed). There is a significance regression model between hotels (X) and rooms (Y) (r = 0.864, Sig. 0.004) at the 0.05 level, which the model is $\hat{Y}$ = -268.403+ 273.075X.

The total number of fixed hotels continues to decline from year to another, it starts with 1307 hotels in 2004 to end with 983 hotels in 2015 by a decrease of 107 hotels. So, the growth rate of fixed hotels decreased by 24.79 % (equals 324 hotels). In 2015, the total number of rooms (105318) decreased by 6110 rooms compared to 2004 (111428). Consequently, the growth rate of rooms is decreased by 5.48% (equals 6110 hotels). Regarding the beds, the total number of beds starts with 211803 beds in 2004 and ends with 195605 beds in 2015, this means that the growth rate is decreased by 7.65 % (equals 16198 beds). In conclusions, the lack of one fixed hotel leads to a shortage of 19 rooms and 50 beds. Moreover, the total number of floating hotels starts with 178 hotels in 2004 to end with 51 hotels in 2015. The growth rate of floating hotels decreased by 71.35 % (equals 127 floating hotels). In 2015, the total number of rooms (2794) decreased by 7240 rooms compared to 2004 (10034). Consequently, the growth rate of rooms is decreased by 72.15%. Regarding the beds, the total number of beds starts with 19450 beds in 2004 and ends with 5339 beds in 2015, this means that the growth rate is decreased by 72.55 % (equals 14111 beds). Based on this analysis, the lack of one floating hotel leads to a shortage of 57 rooms and 111 beds.

The mean of fixed hotels is 1204 with 97.377 as a standard deviation. The coefficient of variance equals 8. 1 %, this means that the development of hotels across 11 years is low. For the rooms, the mean of rooms is

130658.42 with 15604.199 as a standard deviation. The coefficient of variance equals 11.9 %; this means that the development of rooms is more than hotels. In addition, the mean of beds is 242364.42 with 27344.043 as a standard deviation. The coefficient of variance is 11. 3 % and this is related to the variance coefficient of rooms. In addition, the mean of floating hotels is 131.75 with 63.289 as a standard deviation. The coefficient of variance equals 48 %; this means that the variance coefficient of floating hotels across 11 years is more than hotels. For the rooms, the mean of rooms is 8055.58 with 3557.675 as a standard deviation. The coefficient of variance equals 44.2 %; this means that the development of floating hotels' rooms is more than floating hotels. In addition, the mean of beds is 15478.75 with 6881.505 as a standard deviation. The coefficient of variance is 44.5 % and this is related to the variance coefficient of rooms. The fixed hotels are distributed across its stars as follows: 17.03 % five-star, 22.4 four-star, 25.94 three-star, 18.6 two-star, 10.8 one-star, and 5.23 unclassified. For rooms, 34.55 % five-star, 33.03 four-star, 20.36 three-star, 6.46 two-star, 2.05 one-star, and 3.55 unclassified hotels. This means that the three-star hotels have the highest percentage of hotels; the unclassified hotels have the lowest percentage of hotels, the five-star hotels have the highest percentage of rooms, and the one-star hotels have the lowest percentage of rooms. The floating hotels are distributed across its ranking as follows: 72.22 % five-star, 17.04 four-star, 8.9 three-star, 1.11 two-star, 0 one-star and 0.73 unclassified floating hotels. The distribution of floating hotels' rooms is 74.95 five-star, 16.49 four-star, 7.05 three-star, 0.66 two-star, 0 one-star, and 0.85 unclassified. This means that the five-star hotels have the highest percentage of hotels; the one-star hotels have the lowest percentage of hotels, the five-star hotels have the highest percentage of rooms, and the one-star hotels have the lowest percentage of rooms. Based on the statistics of 2016, the total number of fixed hotels is 898 with a mean of 19.11, and the standard deviation is 39.07. The maximum is 180, and the minimum is 0. Consequently, the range of hotels is 180. The total number of room is 179194 with a mean of 3812.64, and the standard deviation is 10585.37. The maximum is 51695, and the minimum is 0. Consequently, the range of rooms is 51695. Three cities occupied 53.56% of the total number of fixed hotels in Egypt, equivalent to 481 hotels. These cities include Sharm El Sheikh 20.04 % (180 hotels), Cairo 17.26 % (155), and Hurghada 16.26 % (146). Also, there are six cities that do not have any hotels such as Bagur, Baltim, Beheira, Gamassa, Shebin El Kom and Zaafarana. Moreover, the total number of potential fixed hotels is 300 with a mean of 6.98, and the standard deviation is 14.47. The maximum is 57, and the minimum is 0. Consequently, the range of hotels is 57. Also, the total number of potential

rooms is 53865 with a mean of 1252.67, and the standard deviation is 2852.46. The maximum is 11545, and the minimum is 0. Consequently, the range of rooms is 11545. The highest destinations in terms of the number of targeted hotels include Sharm El Sheikh 19 % (57 hotels), Quseir 13.33 % (40), Ain Sokhna 12 % (36), Nuweiba/Taba 12 % (36), Marsa Alam 11.33 % (34), Ras Sudr 11 % (33), Hurghada 10.66 % (32), and Cairo 3.66 % (11). For the rooms, the highest destinations include Sharm El Sheikh 21.43% (11545 rooms), Hurghada 20.43 % (11006), Quseir 11.41 % (6147), Ain Sokhna 9.82% (5289), Marsa Alam 9.81% (5288), Nuweiba/Taba 9.73 % (5245), and Cairo 2.57% (1385).

RECOMMENDATIONS

This research suggested a number of recommendations for investors and decision-makers in the ministry of tourism for suitable investment in the Egyptian tourism industry. These recommendations include:

1. The growth rate of hotels is negative, which is a critical indicator of hotel investment in Egypt. So, the Ministry of Tourism should tighten control over hotels continuously.
2. The Ministry of Tourism forms a team to study the real reasons that led to the close of some hotels in order to recover these reasons.
3. The Ministry of Tourism should develop a strategic plan to increase the number of tourists, as this would encourage the hotel investment in Egypt.
4. The Ministry of Tourism should guide investors to new destinations to build new hotels instead of high destinations of hotels.
5. The Ministry of Tourism should search for non-traditional accommodation establishments in order to compensate for the decline in hotel numbers and use it as an attractive factor for tourists.
6. The Ministry of Tourism should cooperate with the Ministry of Investment to identify new hotel investment opportunities and create a new investment map.
7. The Ministry of Tourism should remove all the obstacles of hotel investment, facilitate all investment procedures, and offers some benefits for investors.
8. There should be an increasing in the investment opportunities of floating hotels in the major tourist destinations.

7. LIMITATIONS AND FUTURE RESEARCHES

This research deals in detail with the study of hotel capacity in the category of fixed hotels in 2016. So, it is recommended to study the hotel capacity until 2019, and do a detailed study of hotel capacity in the category of floating hotels in Egypt.

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