

A forecast study about the expected number tourists at city hotels in Dubai during expo year 2021

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Abstract

Tourism has become the world's third largest export industry after fuels and chemicals. The causality between inbound tourism and economic growth is bi-directional. These establishments like many others around the world and in the Emirates have seen a steep decline in the tourism department, in particular customer's arrival and their number of days stay-in reputed hotels in Dubai. Obviously, it is due to the Pandemic and related worldwide travel restrictions. This business issue is taken into consideration, based on past data about a decade to improve customer's expectations that makes economic development in Dubai tourism department. The forecast analysis is made by two key variables Tourists V/s nights they stay in. To arrive suitable forecast value, the analysis is done by three different methods based on extraneous variables in this current pandemic scenario.

Keywords: Dubai Tourism; Expo-2020; Forecast; Number of Tourist.

1. Introduction

Dubai has its track record for its cultural diversity, beauty and life style,. Dubai has a reputation for its world class Hotels and related service industry. These are well known for their high standards and fine dine experience Hotels of Dubai always ensure and maintain high standards in Hospitality and in Customer satisfaction. Dubai Tourism Department closely and continuously monitors and ensures high standards in line with the expectations of their Tourists.

As we all know, the most awaited Expo 2020, a world class event is scheduled to be hosted by Dubai, United Arab Emirates. However, due the Covid-19 pandemic, the rescheduled dates as follows 1st October 2021 – 31 March 2022

This pandemic curtailed Tourism and Air travel throughout the world and so Dubai. The UAE has planned to break the ice and to attract business visitors and to boost the industry. These measures would eventually enable related business industries to bounce back to their old vibrant normalcy.

In this study, around 50 hotels were taken within the emirates ranging 3 star to 5 star ratings. The tariff for these hotels varies from moderate to luxury rates per night, depending on the season. Tourism has been always the contributing factor for Dubai economy. Especially November, December and January, the pleasant weather makes this country's tourism season peak at this period.

This study focusing on forecast method of expected number of tourists arrive and the number of days they stay for their Hotels during the forthcoming Expo by overcoming this current pandemic. Past data is studied well to form a suitable forecast to be more plausible to plan their business.

2. functional area of business

Dubai City Hotels, Stand and shine high above in worldwide more than two decades, these are enthusiastically served and have earned a great reputation and pride among the travelers. They are completely and comfortably occupied with tourists during seasons and non-seasons. Due to this Covid-19, like all other similar business units, hotel industry also went to steep down. In this situation, the expo-2020 is a big boost and giving more hope to the business units to become normal in shorter period. Though, last year had jolted these business units, and the current second, third wave situations are threatening tourism day by day with the travel restrictions produced by many countries

This data analysis and recommendations are preamble to the industry too. We have collected data from the concerned hotels for the past 12 years the total number of tourists arrived to their Hotel and how many days/nights stayed there. This data obtained from the hotel units are, average number of Tourists per month during peak season especially winter months of November, December and January. The number of tourists arrived and numbers of nights they stayed-in Hotels.

Table 1: Data Obtained from Dubai City Hotels Pertaining to the Number of Tourists Arrived and the Number of Days They Stayed-In

Name	YEAR	Number of Tourists (1000's)	Number of Nights stayed (1000's)
City Hotels, Dubai , UAE	2009	70	66
	2010	67	65
	2011	127	135
	2012	154	157
	2013	112	147
	2014	125	135
	2015	132	127
	2016	118	117
	2017	163	190
	2018	139	140
	2019	182	242
	2020	75	85

3. Data analysis

Started to check the relationship between two variables number of Tourists visited the Hotel and Number of Nights they stayed in, the linear relationship between these two variables are strongly positive. The R2 value 0.89 (89%) shows the data is good and the relationship is strong. Thus, it gives the idea that number of Tourists those who check in and stay for the longer period. Hence it highly supports the possibility of those tourists revisit that hotel in future. It evidences that Hotels have secured loyal customers.

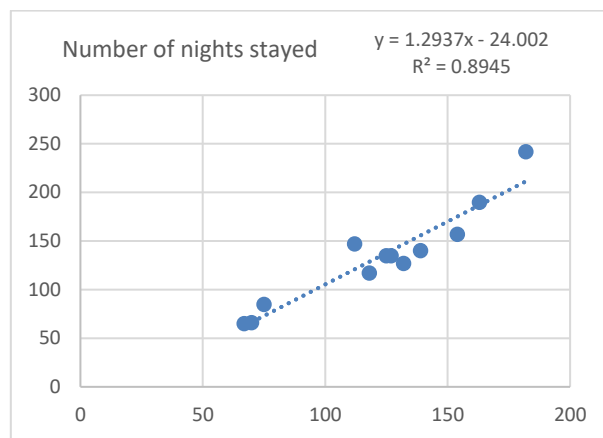


Fig. 1: Regression Between Numbers of Tourists V/S Number of Nights They Stayed.

Regression Equation is $Y = 1.2937 X - 24.002$ with $R^2 = 0.8945$.

Correlation is strongly positive and coefficient of determination evidences about 89.45% that data holds well.

Table 2: Three Years Moving Average Forecast and Mean Absolute Deviation (All Values are in 1000's)

YEAR	Number of Tourists	Number of Nights stayed	3 year M.A for # of Tourists	3 year M.A for Nights Stayed	ABS ERR (Tourists)	ABS ERR (Nights)
2009	70	66	--	--	--	--
2010	67	65	--	--	--	--
2011	127	135	--	--	--	--
2012	154	157	88.00	88.67	66.00	68.33
2013	112	147	116.00	119.00	4.00	28.00
2014	125	135	131.00	146.33	6.00	11.33
2015	132	127	130.33	146.33	1.67	19.33
2016	118	117	123.00	136.33	5.00	19.33
2017	163	190	125.00	126.33	38.00	63.67
2018	139	140	137.67	144.67	1.33	4.67
2019	182	242	140.00	149.00	42.00	93.00
2020	75	85	161.33	190.67	86.33	105.67
2021	--	--	132.00	155.67	--	--
MAD					27.81	45.93

Applied the forecasting technique of 3 period moving average and calculated mean absolute deviation for the two prime variables, the results are tableted. The Forecast for the Number of Tourists and the nights they stay in gives the result as 132000 tourists V/s 155760 Nights compared to previous years these values are significantly lesser compared to previous years. Obviously evidencing that this estimate is acceptable

Table 3: Exponential Smoothing Forecast and Mad for the Value of A = 0.2 (All Values are in 1000's)

YEAR	Number of Tourists	Number of Nights stayed	Smoothing constant $\alpha = 0.2$			
			Forecast for Tourists	Forecast for Nights	ABS ERR (Tourists)	ABS ERR (Nights)
2009	70	66	--	--	--	--
2010	67	65	70.00	66.00	3.00	1.00
2011	127	135	69.40	65.80	57.60	69.20
2012	154	157	80.92	79.64	73.08	77.36

2013	112	147	95.54	95.11	16.46	51.89
2014	125	135	98.83	105.49	26.17	29.51
2015	132	127	104.06	111.39	27.94	15.61
2016	118	117	109.65	114.51	8.35	2.49
2017	163	190	111.32	115.01	51.68	74.99
2018	139	140	121.66	130.01	17.34	9.99
2019	182	242	125.13	132.01	56.87	109.99
2020	75	85	136.50	154.01	61.50	69.01
2021	--	--	124.20	140.20	--	--
				MAD	36.36	46.46

This study supported to have 20% adjusted score compared to previous data due to Pandemic crisis followed by travel restrictions. It is reasonable and acceptable based on more extraneous situation. Hence, used the recommended alpha value of 20% to forecast and corresponding MAD.

It is observed that the forecast for year 2021 is 124200 as number of tourists and 140200 as the number of nights stayed. The forecasted value slightly falls compared to previous three years moving average and the MAD is bit higher than previous method. So, it is understood that three years moving average gives better optimism.

Table 4: Forecast Using Trend Line Method. (All Values are in 1000's)

YEAR	Number of Tourists	Number of Nights stayed
2009	70	66
2010	67	65
2011	127	135
2012	154	157
2013	112	147
2014	125	135
2015	132	127
2016	118	117
2017	163	190
2018	139	140
2019	182	242
2020	75	85
2021	151.4431	177.1059

Alternatively, tried to fit the best fit Trend line for both variables and yielded the forecast for the year 2021 as 151443.1 V/s 177105.9 as number of tourists V/s number of nights. Though these numbers are looking good, but their individual trend line and R² values falls very low. This low value directly refers the poor estimation of forecast and the reliability of data is not holding well. Hence these high numbers are not recommended.

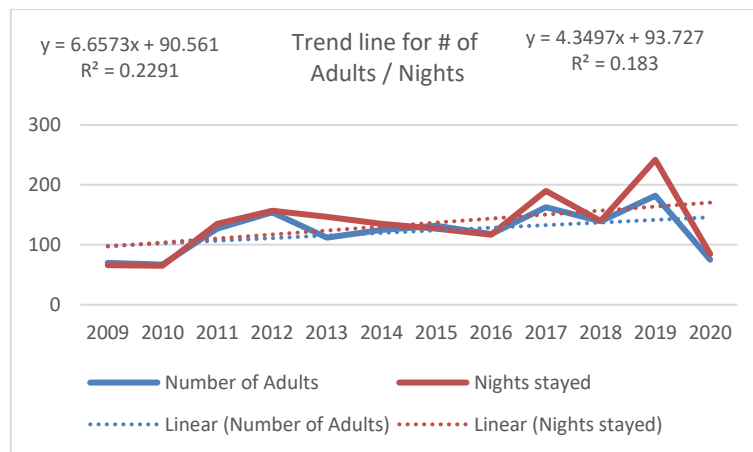


Fig. 2: Graphical Representation of Both Variables with Trend Line.

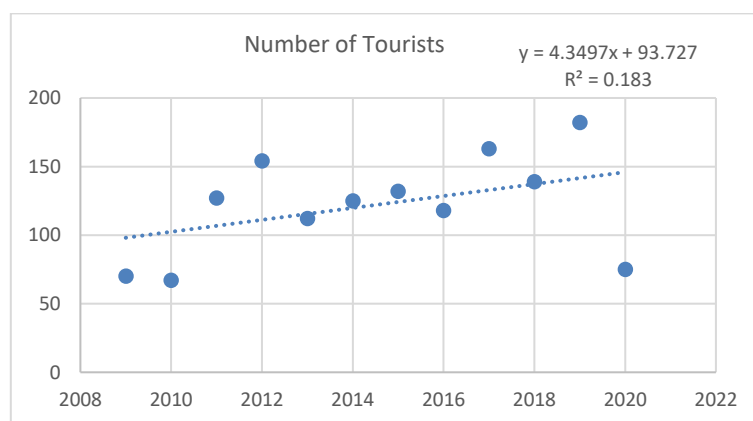


Fig. 3: Trend Line for the Number of Tourists Score.

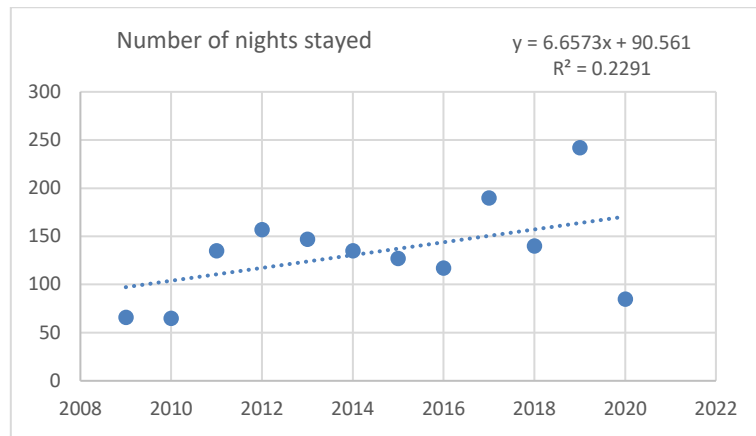


Fig. 4: Trend Line for Number of Nights Stayed In.

4. Comparison

Table 5: Comparison of Results

YEAR	Number of Tourists (In 1000's) (1000(Forecasted))	Nights stayed (In 1000's) (Forecasted)	METHOD	Feed Back
2021	151.4431	177.1059	Trend Line	Poor R2 Value
	132.00	155.67	3 years Moving Average	Better Averages and Lesser MAD
	124.20	140.20	Smoothing Methods (Alpha = 0.2)	Higher MAD

From the above table, it is clearly understood that the forecast for the year 2021 is 13200 for number of Tourists and 155670 (156000 approx.) for number of nights stayed is the better option recommended with valid reason of lesser MAD and better accuracy. Thus, the recommended forecast is three years moving average by this study as optimism.

5. Conclusion

It is believed that countries efforts taken to hold successful Expo-2020 evidences that business will bounce back to the Hotel and tourism industry. The various measures and protocols followed by the government is promising to bring normalcy back in lifestyle. The challenges faced by UAE is controlled and brought down to boom business back to providing high lifestyle to people living in the country as well the tourists. The expectations are high in customer arrivals through Airports and through land borders too. The increased flight services and relaxations announced by the government gives big hope about the success of Expo and business. The efforts taken by the Dubai tourism department and other government entities make this study meaningful.

After performing three different methods of forecasting for the provided data set, it is arrived to recommend the tabulated value with valid reasons. Hence, it is depicted that the best results of forecast for city hotels in Dubai is 132000 as number of Tourists and 156000 as number of nights they stay during the peak season of winter months alone.

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