ISSN: 0798-1015

REVISTA ESPACIOS

Vol. 41 (25) 2020 • Art. 18

**Recibido**/Received: 30/04/2020 • **Aprobado**/Approved: 27/06/2020 • **Publicado**/Published: 09/07/2020

# The Impact of Festival & Events in Chicago Hotel Industry

## El impacto de los festivales y eventos en la industria hotelera de Chicago

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**Abstract**
Research and statistics from the city of Chicago recognize wide economic impacts from the organization of festivals and events in the city. However, a less researched topic is how the organization of festivals and events directly influence hotels rates and occupancy. The aim of the paper is to precisely determine to what extent both indicators (rates and occupancy) are affected by the organization of major festivals and events in the city of Chicago across different hotel categories and seasons.
**Key words:** hotel industry, festival and events impacts, occupancy rate (or), average daily rate (adr)

**Resumen**
Diferentes estudios reconocen que la organización de festivales y eventos generan una relevante fuente de ingresos para la ciudad de Chicago. Sin embargo, un tema menos estudiado es el impacto directo en las tasas de ocupación hotelera y en el precio medio por habitación. El objetivo del estudio es determinar con precisión, en que medida ambos indicadores (precios y ocupación), se ven afectados por la organización de grandes eventos y festivales en la ciudad de Chicago en diferentes categorías de hoteles y temporadas.
**Palabras clave:** industria hotelera, impactos de festivales y eventos, tasa de ocupación, tarifa medio por habitación

## 1. Introduction

Hosting festivals and events has become an important element in cities' and regions' strategy to attract visitors and local investments, providing a major boost to the tourism sector, and contributing to the destinations' competitiveness (Getz, 2008). They can be used as drivers to increase spending and length of stay, motivating both tourists and residents to participate, and attracting visitors who, otherwise, might never visit the destination or might stay for a shorter duration. Therefore, festival and events could also encourage visitor´s extending their stay through a well-designed program of activities. Local authorities are increasingly using events to achieve a diverse range of economic objectives (Maguire & Hanrahan, 2017). Festivals and events are both drivers of destination attractiveness but, more fundamentally, function as a key part of the marketing propositions in the

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promotion of places given the increasingly global competitiveness to attract visitor spending. Interestingly, place marketing, often referred to as boosterism (where events are used to 'boost' visitor numbers and appeal) has emerged as a key feature associated with events to develop a unique selling proposition that differentiates the destination from the competition (Getz & Page, 2016). Lastly, events can also serve to attract investment and improve infrastructure (Getz, 2007).

Chicago has actively embraced this strategy since the early 90´s becoming both one of the most successful festival and event's organizers in the United States of America and also working to attract events to the city (events which it does not organize). The construction of the "city of spectacle" required leadership and vision to remake Chicago's image and physical infrastructure. Former Mayor Richard M. Daley garnered the resources and political power necessary for supporting an aggressive program of construction that focused on signature projects along the city's lakefront. Because of all these initiatives, the number of tourists visiting Chicago skyrocketed during the Daley years (Spirou & Judd, 2016).

The change in tourism strategy that took place in the early 90s´ has resulted in a thriving tourism industry in Chicago over the time period studied. Taking into account the increase of hotel supply and Chicago's ability to host public and private events, the city was able to reach 57.7 million visitors in 2018 (Choose Chicago, 2018: 6).

Tourism growth in a city is directly related to hotel capacity within the destination. Meeting organizers often select a destination based on the hotel supply and diversity of supply. A lack of hotel room supply can deter a city from hosting major festivals and events (ESPN, 2005). Chicago has increased room supply at a pace of 1% per year from 2010 up to 2015. Despite that, occupancy rates have increased in the same period.

The hotels offered in all categories continue to increase steadily and the occurrence of events is undoubtedly contributing to their economic success. This should have positive repercussions in the city of Chicago by means of direct taxes. In this sense, the city tax rate is set at 4.5% from the overall 17.4% which is the effective composite hotel tax rate in Chicago, including hotel taxes imposed by other governments and agencies (City of Chicago, 2019).

However, few attempts have quantified the direct impact of festivals and events organization in the hotel industry and measured how they affect hotels' revenue management patterns maximizing rates and occupancy.

Thus, this article has two basic objectives: (1) To develop a comprehensive effect of festivals and events on Chicago's hotel industry. (2) To quantify to what extent average daily rates (ADR) and occupancy rates (OR) per hotel category are affected by the organization of major events and festivals in Chicago.

In other words, the article aims to assess the ´rising tide´ effect, referring to the increased tourism income to rising accommodation prices during festivals and events (Pan et al., 2013). These authors note that rising tide likely enhances the event´s economic contributions significantly in a manner not captured by the organizer´s economic impact studies. The authors hypothesize that this is partially due to hoteliers' confidence to increase ADR as a result of the increased influx of visitors that accompany festivals and events organization in Chicago without negatively impacting OR. We suspect that this variable is already actively included into their revenue management settings.

Although it might be evident that festivals and events should increase ADR and OR, there are several biases including tourists staying in other accommodations such as Airbnb or staying with friends and relatives, one day trippers (arriving by road, train or plane), or attendance by local inhabitants. Therefore, studying more in detail the effect of events in the hotels OR and ADR is relevant.

## 1.1. Festivals and events research framework approach

Events are special celebrations that are planned and organized by different public institutions or private organizations and may contain a number of activities (Hernández-Mogollón et al., 2014). Events and festivals are an essential part of the urban life, having generally very diversified themes, such as thematic festivals, political events, cultural activities, sporting events, religious events, conferences, meetings, etc. Festivals and events are becoming more and more important both for the urban development (having a great impact on the image of the host city), as well as for its inhabitants. Moreover, research related to this field is becoming a popular subject (Popescu & Corbos, 2012). Historical research demonstrates how festival and events have a long history of acting as tourist attractions and cementing places as tourism destinations (Quinn, 2009).

As Stokes (2005) notes, event tourism is construed as a sector primarily driven by the goal of economic benefits. A key driver for the growth and reinvention of festivals and events has been their potential to deliver a series of development outcomes in terms of economic restructuring and revitalization, destination repositioning, investment and tourism revenue generation (Quinn, 2009).

## 1.2. Events as an underpinning for tourism

Festivals and events generate an image boost and offer many advantages to both locals and travelers to the city. Festivals and events attract people to destinations and motivate them to travel to the destination in order to attend a specific event thus generating higher income in the tourism industry. For many western cities, a key motivation in developing festival and event strategies has been to recover from long-term economic decline. Festivals and events have been part of a wider range of new cultural strategy. Therefore, for these cities, festivals and events are part of place-marketing strategies, fueled by an ideology of globalization, localization and competition among cities (Quinn, 2009). According to Getz and Page (2016), one of the core propositions of event tourism states that events can attract tourists (and others, such as sponsors and the media) who otherwise might not visit a particular place. The spending of event tourists generates economic benefits, and event tourism can be leveraged for maximum value in combatting seasonality of demand, spreading tourism geographically, and assisting in other forms of urban and economic development. Portfolios of events can be designed for maximum impact, especially by appealing to multiple target segments.

This paper analyzes in detail the first proposition of whether event tourism generates economic benefits (to hotels, and by taxes to the city) and if it helps combatting seasonality of demand, in a city such as Chicago that is very affected by the climate.

## 1.3. Festival and events economic impact on hotel performance

There has been a significant growth in academic literature evaluating the economic impact of festivals and events (Chang et al., 2015; Davies et al., 2013; Testa & Metter, 2017). In part, this growth has been due to the needs of event organizers, sponsors and government, to justify the investment of both private and public funds to support major events (Davies et al., 2013). Event evaluation can be defined as the holistic assessment of an event through the utilization of a broad range of measures and approaches to determine its value and impacts in an agreed or prescribed context (Brown & Getz, 2015). Event evaluation continues to evolve, expand, and become more complex as the discourse on events and event-tourism evolves. The basic applications remain intact, including placing a value on events and their sub-elements through attendee satisfaction or return on investment (ROI) measures (Brown & Getz, 2015). This article attempts to take a deeper analytical approach to the impact of events within an economic impact framework related to revenue management and, more specifically, OR and ADR. This analysis moves beyond the impact of the hotel industry's direct contribution to city's tax base. Therefore, the aim of this paper is to analyze to what extent festival and events organization during the five years studied affected OR and ADR within the hotel industry in Chicago.

In North America, it is fairly common that meeting planners are in charge of event management. Professional meeting planners are experienced and knowledgeable regarding the accommodation industry and the complexity of a contract. Events rates may fluctuate based on seasonality and the size and overall revenue impact of the event in question (Forgacs, 2010). In that sense, seasonality refers to a variation of demand based on the season of the year. However, demand fluctuations can be observed by days of the week as well.

### 1.4. Chicago tourism destination background

Chicago is the third largest city in the United States, it counts dozens of cultural institutions, historical sites and museums, over 7300 restaurants, 250 live music venues and more than 200 theaters (City of Chicago, n.d.). Since the early 80´s, Chicago has engaged in extensive physical restructuring of the lakefront in effort of redefining the city as one of culture, entertainment and recreation. Along with this, a new vision for the city emerged. The restructuring of Navy Pier as a recreational/exposition facility, the transformation of Northerly Island into a recreation/education park, the creation of the Museum Campus, the expansion of McCormick Convention Centre currently offering the largest amount of exhibition space in North America (2.2 million square feet), the transformation of Soldier Field Arena and the construction of the Millennium Park reveals the culturally based pro-growth ideology of Chicago during this period (Spirou, 2006).

In 2018, Chicago welcomed a record of 57.7 million visitors, an increase of 4.3% from 2017. This growth resulted in a 4.4% increase in overall hotel room demand and an encouraging 4.6% growth in average daily rate for our hotel partners (Choose Chicago, 2018: 6). These figures prove the unceasing strength of the tourism development strategy implemented in the destination since the 80´s. Tourism is a key driver and the city was committed to bringing more comprehensive strategy and focus to this area. Former Chicago Mayor Rahm Emanuel acknowledged festivals and events as integral to the city's tourism efforts. "*Signature events held in Chicago create more customers for our businesses today and bring the potential for repeat visitors and more economic growth for tomorrow. The City of Chicago will continue to redouble our efforts to attract more marquee events*" (Channick, 2015).

Festival and events are of primary importance and a source of growing revenue. Chicago hosts major concerts, festivals (Lollapalooza, Magnificent Mile Lights Festival), 36 annual parades, sporting events (Bank of America Chicago Marathon and Health & Fitness which attracts over 150,000 people), large trade shows, numerous corporate events and association events. In the last category, annually Chicago hosts major association events like the Radiological Society of North America conference which attracts over 50,000 people (Hagland, 2018) or the Restaurant Association Show which attracts approximately 65,000 people (Total Food Service, 2018).

## 2. Hypothesis and data source

The statistical analysis will be used to verify the following hypotheses:

1. It makes sense to allocate public funds to organize events in Chicago because the funds revert in society through the increase in tourism income. This will be proved if average daily rates (ADR) and occupancy rates (OR) per hotel category (Upscale, Upper Upscale and Luxury) are positively affected by the organization of festivals and events in Chicago.
2. While seasonality affects ADR and OR, festivals and events contribute to overcoming seasonality effects within the local Chicago hotel industry.
3. American lifestyles make Chicago’s tourism have a homogeneous behavior throughout the week. The hotel occupancy is more similar during weekends or bank days than during workdays.
4. The ADR and OR are not equally affected by festivals and events for all types of hotels, with luxury hotels being less affected because of their lower elasticity service profile.

5. The ADR and OR are not equally affected by festivals and events for all types of hotels and for each season.

For the purpose of this research, the authors have obtained information about both ticketed and non-ticketed events in six different categories including parades and shows, concerts, festivals, sports (off-season) and MICE events (public and private meetings, conferences, and exhibitions). Information regarding attendance for MICE events has been obtained from the Chicago destination management organization, Choose Chicago. This organization is also in charge of selling space at McCormick Place, the largest exhibition space in North America. Thus, the data includes large business events held at McCormick Place. Choose Chicago defines seasonality in Chicago by three seasonal timeframes per year. Thus, Low season corresponds to December, January and February, Medium season to March, April and November, and High season to May, June, July, August, September and October.

OR and ADR were extracted from STR's dSTAR Report. STR provides premium data benchmarking, analytics and marketplace insights for global hospitality sectors; their dSTAR Report is an industry standard among hoteliers in the United States. This report provides property performance compared to its competitive aggregate and general market, and allows hoteliers to follow trends in OR, ADR, and revenue per available room (RevPAR). Our sample includes the values for each of these variables from January 1, 2010 to December 31, 2015. The values are aggregated in three categories: Upscale hotels, Upper Upscales hotels and Luxury hotels. These categories support the classifications used within the dSTAR Report based on the previous year's annual system wide (global) ADR. Consequently, the dataset contains 3 time series, one for Upscale hotels, other for Upper Upscale and the last one for Luxury hotel. Each series include 2,191 days with the average OR and ADR for each category.

A sub-sample with days switching from not having any event to having an event has been also obtained (from now on called *sample of changes*). This second sample contributes to analyzing whether there are significant differences in the changes in ADR and OR due to events across different hotel categories.

## 3. Descriptive analysis and normality test

The empirical study starts with a descriptive analysis of the sample (N = 2,191 days) to understand the behavior of the different variables that will be analyzed.

**Table 1**
Descriptive statistics for the daily values of ADR and OR from January 1, 2010 to December 31, 2015 per hotel category

| | Upscale | | Upper Upscale | | Luxury | |
|---|---|---|---|---|---|---|
| | ADR ($) | OR (%) | ADR ($) | OR (%) | ADR ($) | OR (%) |
| Arithmetic mean | 150.29 | 79.33 | 177.74 | 75.32 | 318.88 | 71.05 |
| Median | 148.32 | 86.40 | 173.93 | 81.70 | 313.90 | 75.50 |
| Variation coefficient (VC) | 0.32 | 0.25 | 0.26 | 0.27 | 0.17 | 0.30 |
| Minimum | 65.16 | 21.60 | 104.80 | 17.10 | 206.26 | 12.80 |
| Maximum | 327.76 | 100.70 | 352.17 | 99.60 | 553.50 | 99.80 |
| Kolmogorov-Smirnov | 3.05 | 7.04 | 2.91 | 5.76 | 2.17 | 4.82 |
| p-value | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: Own elaboration using IBM SPSS Statistics 23 software.

Table 1 shows the most important descriptive statistics for the sample values of ADR and OR per hotel category in this period. Results of the Kolmogorov-Smirnov Normality test are also included in this table.

The Upscale hotels present a minimum ADR of $65.16 and a maximum of $327.76, consequently this category represents the less expensive or more “value-driven” hotels in Chicago. The average price for this category is $150.29, which is a representative measure considering that this variable has a small dispersion (VC=0.32).

In this sample the Upscale hotels have the higher OR, which ranges from 21.6% to the 100.70%, the latter figure accounting for overbooking periods. The average is 79.33% and it is slightly higher than the arithmetic mean of the other categories. It is possible to compare these average ORs since variation coefficients are small and quite similar in all of them, so all averages are equally representative.

Upper Upscale hotels have an ADR between $104.80 and $352.17 with an average of $177.74, supporting the category distinction from the Upscale category. The OR of these hotels are slightly lower than the OR for Upscale hotels.

Finally, the most expensive hotels rates are in the Luxury category, with an average ADR of $318.88, a minimum value of $206.26 and a maximum value of $553.50. The Luxury hotels have the lowest OR. Therefore, it can be stated that in Chicago, as the category increases, the average OR decreases.

As we expected, according to the normality test of Kolmogorov-Smirnov neither ADR or OR are variables which follow a normal distribution for any hotel category. Consequently, non-parametric tests will be used in the statistical analysis. Obtaining the correlation coefficient of Spearman could be observed that all the variables are substantially related, at a significance level of 0.01. In general, all the correlations are high, which means that ADR and OR in hotels in the same dates are strongly related, as it was expected.

The higher correlation coefficients are found between OR in the different type of hotels. This means that when the OR is high in Upscale, it is found that is generally also high in Upper Upscale and in Luxury. The relationship is higher also between ADR in Upper Upscale and ADR in Upscale, and lower with ADR in Luxury. So, when a type of hotel increases prices, the rest of the types of hotels also do it.

The smallest correlations are obtained in the case of ADR in Luxury, where the authors observed that price is less dependent, but still related, to the different analyzed situations.

## 4. Findings

In order to verify the hypotheses, the data including ADR and OR variables per category, seasonality and number of events from the previously described sample have been analyzed. To prove the first hypothesis, which stated that ADR and OR are affected by the organization of major events and festivals in Chicago, a Mann-Whitney U test was applied (Mann & Whitney, 1947). This non-parametric test distinguishes if there are significant differences between the expected value of a variable in different situations. It will be used to prove if the expected value for ADR and OR variables for particular days are different when an event occurs within the city versus when there is no event. The Mann-Whitney U test will be applied to each hotel category.

**Table 2**

Mann-Whitney U test for means differences for ADR and OR variables for event days and non-event days and categorized by hotel category

| | Upscale | | Upper Upscale | | Luxury | |
|---|---|---|---|---|---|---|
| | ADR | OR | ADR | OR | ADR | OR |
| Mann-Whitney U | 401225.5 | 40010 | 410660 | 406444 | 484221.5 | 437020 |
| p-value (bilateral) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Mean without events | 135.21 | 73.35 | 164.11 | 69.27 | 308.56 | 65.68 |
| Mean if there is any event | 162.59 | 84.21 | 188.86 | 80.26 | 327.3 | 75.43 |

Source: Own elaboration based in the results obtained using IBM SPSS Statistics 23 software

Table 2 shows the results of the Mann-Whitney U test for ADR and OR variables grouped by the variable of whether an event occurred or not. In the data set, each day was coded for its "event occurrence." A day with an event was coded with value 1 and a day without an event was coded as 0. In the table it is demonstrated that, as intuitively expected, the ADR and the OR for each hotel category are significantly affected by the occurrence of events in Chicago, since all p-values are smaller than 0.01.

Table 2 also shows the means of ADR and OR for the different hotel types on days when there are events versus when there are no events. It should be observed that, as expected, for all hotel categories both ADR and OR are higher if there are events occurring in the city. Mann-Whitney U test proves that these appreciated differences are statistically significant. Consequently, there are statistical evidences to affirm that destinating public funds to boost festivals and events in the city of Chicago increases the hotels revenues.

In order to prove the second hypothesis, related to the relationship between the seasonality and ADR and OR, the Mann-Whitney U test was applied again, now for each hotel category and season. Three seasonal timeframes were analyzed: High, Medium and Low. Chicago's cold winter weather makes it a less attractive destination during the Low season. The authors try to prove here if this decrease in hotels demand could be reduced by holding events.

Tables 3, 4 and 5 show the results of the Mann-Whitney U test for Upscale hotels, Upper Upscale hotels and Luxury hotels respectively, categorized by the seasonality to contrast if the means of variables ADR and OR are different considering if events occur or not in a day for each season.

**Table 3**

Mann-Whitney U test for means differences for variables ADR and OR grouped by event and categorized by seasonality for the Upscale hotels.

| | Upscale | | | | | |
|---|---|---|---|---|---|---|
| | Low | | Medium | | High | |
| | ADR | OR | ADR | OR | ADR | OR |
| Mann-Whitney U | 32527 | 26453.5 | 28004.5 | 29281.5 | 101568.5 | 104073 |
| p-value (bilateral) | 0.113 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Mean without events occurring | 96.03 | 55.36 | 135.1 | 77.12 | 168.9 | 85.84 |
| Mean if there is any event occurring | 100.02 | 64.51 | 149.53 | 82.83 | 186.07 | 90.65 |

Source: Own elaboration based in the results obtained using IBM SPSS Statistics 23 software.

In the case of the Upscale hotels, the Mann-Whitney U test for differences in expected values proves that events significantly increase the OR in all seasons.

The ADR expected value is only significantly different for the Medium and the High season. During Low season (when the weather is colder), the ADR increases are not significant even though the average OR increases with the events. The reason of this behavior could be that during Low season, full occupation is unlikely, so the bargaining power of event organizers and meeting planners is higher especially in Upscale hotels. However, the hotels' primary objective is to increase OR at a time when weather conditions are most extreme, and this objective appears to be successfully achieved.

**Table 4**

Mann-Whitney U test for means differences for variables ADR and OR grouped by event and categorized by seasonality for the Upper Upscale hotels

| | Upper Upscale | | | | | |
|---|---|---|---|---|---|---|
| | Low | | Medium | | High | |
| | ADR | OR | ADR | OR | ADR | OR |
| Mann-Whitney U | 31497 | 28560 | 29754 | 29364.5 | 102396.5 | 102384 |
| p-value (bilateral) | 0.031 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Mean without events | 129.41 | 50.79 | 165.29 | 72.19 | 192.96 | 82.85 |
| Mean if there is any event | 132.99 | 57.57 | 176.73 | 78.12 | 209.97 | 87.86 |

Source: Own elaboration based in the results obtained using IBM SPSS Statistics 23 software.

Table 4 demonstrates that the behavior of Upper Upscale hotels is the expected throughout all seasons, since both, ADR and OR significantly increase with the events. According to the Mann-Whitney U test, the expected values of variables ADR and OR are different if there are events in all seasons, since the null hypothesis of equality in expected values is rejected at a significance level of 0.05 in all cases. These differences make the OR higher when an event is held in the city and allows the hoteliers to increase the ADR across all seasons.

**Table 5**

Mann-Whitney U test for means differences for variables ADR and OR grouped by event and categorized by seasonality for the Luxury hotels

| | **Luxury** | | | | | |
|---|---|---|---|---|---|---|
| | **Low** | | **Medium** | | **High** | |
| | **ADR** | **OR** | **ADR** | **OR** | **ADR** | **OR** |
| Mann-Whitney U | 28493 | 30035.5 | 35340.5 | 32488 | 106636.5 | 110608.5 |
| p-value (bilateral) | 0.000 | 0.003 | 0.338 | 0.012 | 0.000 | 0.000 |
| Mean without events | 286.4 | 49.1 | 302.84 | 67.89 | 332.02 | 78.19 |
| Mean if there is any event | 273.62 | 53.86 | 305.85 | 71.98 | 351.01 | 83.16 |

Source: Own elaboration based in the results obtained using IBM SPSS Statistics 23 software.

In the Luxury hotels category, the Mann-Whitney U test shows that in the High season, the behavior of ADR and OR is as expected: there are differences in expected values with the celebration of events which increases both OR and ADR, as can be observed in table 5.

In the Medium season, the test does not find significant evidences to reject the null hypothesis of equal expected values for ADR, when it is grouped by the presence of events. That means that, even though the OR increases when events occur, the prices of Luxury hotels stay the same in the Medium season.

Finally, for Low season the Mann-Whitney U test finds that the OR is significantly higher, but the room ADR are significantly reduced when events are held in the city. This data might be explained because, during the Low season, Luxury hotels make an effort to compete against the Upper Upscale segment with the aim of increasing

their OR at the most critical time of the year. This is the time of the year where these types of hotels are more accessible. The ability to attract the attention of event organizers and meeting planners to negotiate rooms could explain this behavior. Because of the concessions made by Luxury hotels regarding price during Low seasons, events are noticeably contributing to an increase in the OR.

In order to prove the third hypothesis, related to the homogeneous behavior of tourism in Chicago along the days of the week, the influence of the weekend in ADR and OR variables will be analyzed. Table 6 shows the results of the Mann-Whitney U test for ADR and OR variables grouped by variable "weekend", which distinguish between weekend and bank days and regular weekdays. The average for these two variables has been also included by grouping by weekend variable.

**Table 6**

Mann-Whitney U test for means differences for variables ADR and OR grouped by weekend and categorized by hotel category

| | Upscale | | Upper Upscale | | Luxury | |
|---|---|---|---|---|---|---|
| | **ADR** | **OR** | **ADR** | **OR** | **ADR** | **OR** |
| Z | -0.229 | -0.801 | -0.159 | -0.882 | -0.658 | -0.657 |
| p-value (bilateral) | 0.819 | 0.423 | 0.873 | 0.378 | 0.510 | 0.511 |
| Arithmetic mean on weekends or bank days | 150.15 | 79.75 | 178.02 | 75,74 | 319.80 | 71.33 |
| Arithmetic mean on weekdays | 150.61 | 79.14 | 177.62 | 75.13 | 318.46 | 70.93 |

Source: Own elaboration based in the results obtained using IBM SPSS Statistics 23 software.

No significant differences in arithmetic means of ADR and OR between weekend or bank days and weekdays are found comparing directly their values showed at the bottom of Table 6. This result is confirmed by the Mann-Whitney U test in all hotels categories, as no significant evidence has been found to reject the null hypothesis of equality in expected values of ADR and OR, grouping by variable weekend across all tests.

A similar analysis was completed by separating weekend and daily data by seasonality and a analogous result has been observed to achieve the same conclusion: There are no differences in the expected values of ADR and OR when data are separated in two groups to distinguish the weekends and bank days with the weekdays. Therefore, weekend and bank days have no significant different ADR or OR than weekdays. Then, it can be concluded that tourism has a homogeneous behavior along the week in Chicago. Moreover, observing the dates of the different events it is possible to observe that business events are celebrated in weekends, bank days or working days indistinctly. This does not happen in other parts of the world, like, for example Europe, when business events usually occur in working days.

Related to hypothesis 1, a significant change in OR and ADR was found when an event is held. The question now is: Is there a significant difference in the changes between different types of hotel? (Hypothesis 4)

To answer this question, a new sample was created. In order to calculate the magnitude of the change in OR and ADR due to events, it would be ideal to compare the values for the same day with and without event. As this is clearly not possible, the best option is to compare one day with the previous day, as we demonstrate than the type of day (weekend or weekday) does not affect to the variables. Doing that, the new sample captures the change in OR and ADR between two consecutive days over which the existence of an event switch (i.e., change between Day 1 no event occurred and Day 2 event occurred) and also reflects the percentage differences in OR and in ADR between the two consecutive days. The new sample (sample of changes) has 204 comparison points enabling the authors to investigate whether the percentage changes vary across the different hotel categories. The main descriptive statistics for this sample, of variables changes in OR and changes in ADR are showed in Table 7:

**Table 7**
Descriptive statistic for percentage variable changes in OR and ADR in change sample, categorized by hotel category

| | | N | Mean | Standard Deviation | Minimum | Maximum | Friedman test (p-value) |
|---|---|---|---|---|---|---|---|
| Occupation Rate (OR) | Upscale | 204 | 2.3843 | 13.50031 | -43.30 | 37.30 | 8127 (0.017) |
| | Upper Upscale | 204 | 2.5454 | 13.05536 | -40.01 | 33.49 | |
| | Luxury | 204 | 2.4686 | 14.81121 | -45.60 | 36.30 | |
| Average Daily Rate (ADR) | Upscale | 204 | 0.0396 | 0.10118 | -0.34 | 0.49 | 0.747 (0.688) |
| | Upper Upscale | 204 | 0.0253 | 0.07418 | -0.23 | 0.39 | |
| | Luxury | 204 | 0.0199 | 0.0729 | -0.17 | 0.25 | |

Source: Own elaboration using IBM SPSS Statistics 23 software.

For the 204 comparison points, the average change in OR was 2.38% for Upscale hotels, 2.55% for Upper Upscale hotels and 2.47% for Luxury hotels. All these averages have a high standard deviation, so they are not strongly representative values. Examining these values, no differences among means are appreciable among the different hotels' categories.

The differences in the change of ADR for the different hotel categories seem to be larger. In arithmetic means, the average change for Upscale hotel is 3.96%, 2.53% for Upper Upscale Hotels and 1.99% for Luxury hotels. In this case, the standard deviations show smaller dispersion than in the case of OR, comparing them with their corresponding arithmetic means, but continue being large. Apparently, the change in ADR is smaller as the base price increases (higher hotel category).

In order to prove if the expected value changes of both variables are significantly different among each hotel categories, the Friedman test was used (Friedman, 1937; Friedman, 1939; Friedman, 1940). This test allows to contrast the null hypothesis of equality in expected values for a variable categorized by another, when this variable is not normal. This non-parametric test will be used instead of Mann-Whitney U test because it compares more than two expected values, and now a comparison among three expected values is required. Moreover, the sample data are not independent because the OR and ADR changes are compared across the same time period for the three hotel categories. The results for Friedman test applied to ADR and OR changes categorized by hotel categories are shown in last column of table 7.

As it was seen comparing directly the arithmetic means, for changes in variable OR the expected values are not significantly different for the three hotel categories, since at a significance level of 0.05 the null hypothesis of equality in expected values cannot be rejected. It means that occupancy rates increase with the events and this increase is homogeneous for all hotel categories.

In the case of ADR, as the p-value is smaller than 0.05, it can be concluded that changes in ADR caused by the presence of an event have a significantly different value in hotels of different categories, the highest change occurring for Upscale hotels and the lowest for Luxury hotels. It can therefore be said that Upscale hotels benefit especially from the celebration of events in the city of Chicago, taking into account that they are the ones that increase their prices in a higher way with the celebration of events and festivals. On the other hand, Luxury hotels are the less confident to increase their prices with the event celebration, even lowering them in Low season, as we proved before.

Finally, to prove hypothesis 5, the sample of changes (204 paired days which have changed from not having event to have events) will be used again. This sample will be used to test if there are significant differences in the changes in OR and ADR among different hotel categories and by seasons.

**Table 8**
Descriptive statistics for variable changes in ADR categorized by hotel and season

| | | N | Mean | Standard Deviation | Minimum | Maximum | Friedman test (p-value) |
|---|---|---|---|---|---|---|---|
| Season = Low) | Change in ADR (Upscale) | 42 | -0.0003 | 0.07846 | -0.14 | 0.38 | 1.857 (0.395) |
| | Change in ADR (Upper Upscale) | 42 | 0.003 | 0.05343 | -0.11 | 0.19 | |
| | Change in ADR (Luxury) | 42 | 0.0034 | 0.05908 | -0.16 | 0.13 | |
| Season = Medium | Change in ADR (Upscale) | 50 | 0.0732 | 0.10259 | -0.12 | 0.37 | 9.48 (0.009) |
| | Change in ADR (Upper Upscale) | 50 | 0.0371 | 0.06297 | -0.08 | 0.23 | |
| | Change in ADR (Luxury) | 50 | 0.0212 | 0.06341 | -0.09 | 0.15 | |
| Season = High | Change in ADR (Upscale) | 112 | 0.0396 | 0.1034 | -0.34 | 0.49 | 6.446 (0.04) |
| | Change in ADR (Upper Upscale) | 112 | 0.0284 | 0.08364 | -0.23 | 0.39 | |
| | Change in ADR (Luxury) | 112 | 0.0255 | 0.08073 | -0.17 | 0.25 | |

Source: Own elaboration using IBM SPSS Statistics 23 software.

Table 8 shows the main descriptive statistics for variable changes in ADR categorized by hotel category and seasonality. It can be noted (by seeing the arithmetic means) that in the Low season, the difference in ADR changes between types of hotels is smaller than in the rest of seasons. This is confirmed by the Friedman test, which concludes that there are no significant differences in the expected values of the changes produced in ADR in the Low season for the different hotel categories. Thus, during the Low season, the increase in prices in the different hotel categories is homogeneous. In this season, hoteliers used events to increase the occupancy rates, so the increase in prices was not very high.

On the contrary, the changes produced in ADR in Medium and High seasons are significantly different for the different hotel categories. The Upscale hotels have the highest increases in room rates during events, followed by the Upper Upscales hotels. The hotels with a smaller price increase for events are the Luxury hotels.

Price elasticity for different categories might explain this fact. Travelers at the lower and middle end are more price-sensitive than those at the higher end. Therefore, Luxury hotels prices have a tendency to fluctuate less than other hotel categories. They slightly increase when there is an event during middle and high season, but not as much as Upper Upscale and Upscale hotels. These are more sensitive to price to remain competitive, thus they take advantage of festivals and events to increase the price even more than higher end.

To analyze the behavior of changes in OR for the different hotel categories by season, Table 9 shows the main descriptive statistics for this variable and these categories.

**Table 9**
Descriptive statistics for variable changes
in OR categorized by hotel and seasons

| | | N | Media | Standard Deviation | Minimum | Maximo | Friedman test (p-value) |
|---|---|---|---|---|---|---|---|
| Season = Low | Change in OR (Upscale) | 42 | 3.9976 | 15.29815 | -43.3 | 37.2 | 5.905 (0.052) |
| | Change in OR (Upper Upscale) | 42 | 3.2507 | 13.50259 | -37.85 | 25.33 | |
| | Change in OR (Luxury) | 42 | 2.8976 | 13.58948 | -35.3 | 35.7 | |
| Season = Medium | Change in OR (Upscale) | 50 | 1.622 | 15.58159 | -40.9 | 28.7 | 1.44 (0.487) |
| | Change in OR (Upper Upscale) | 50 | 2.0708 | 16.15944 | -40.01 | 26.94 | |
| | Change in OR (Luxury) | 50 | 0.692 | 17.00349 | -45.6 | 23.3 | |
| Season = High | Change in OR (Upscale) | 112 | 2.1196 | 11.76356 | -33.4 | 37.3 | 4.09 (0.129) |
| | Change in OR (Upper Upscale) | 112 | 2.4928 | 11.34909 | -33.08 | 33.49 | |
| | Change in OR (Luxury) | 112 | 3.1009 | 14.26384 | -39 | 36.3 | |

Source: Own elaboration using IBM SPSS Statistics 23 software

Arithmetic means do not seem to present higher differences among the three hotel categories, considering their values and their high standard deviations. In fact, there is a huge heterogeneity in all the sub-samples if one considers the standard deviation related to the arithmetic mean. Friedman test applied to this variable confirms that the differences are not significant except during Low seasonality at a significance level of 10%. This is an interesting result considering that this is the seasonality where there were no significant differences in ADR changes.

## 5. Discussion and conclusions

According to the completed analysis, it can be concluded that, in general, hoteliers have the confidence of increase ADR when any type of event is organized in the city. The reason for that is that the OR always has a significant increase with the occurrence of events.

Only the Upscale hotels in the Low season and the Luxury hotels in the Medium seasons keep the ADR the same when events are occurring in the city. In the Low season, the Luxury hotels actually reduce room rates in deference to maintaining OR levels. The need to maintain the hotels with the highest possible OR could explain the concessions in the ADR detected. Moreover, a continuous increase in supply in every hotel category exists due to new hotel openings in recent years. This is also affecting higher competition and affecting ADR and OR.

The basic economic law of supply and demand reflects an economic environment where consumers compete for limited goods. This article clearly proves that accommodation demand is higher at Upscale, Upper Upscale and Luxury when events are happening in the city of Chicago. Moreover, ADR is also significantly affected by events in all three categories. Consequently, it is worth to destinate public funds to promote events and festivals in Chicago, because it has a positive impact on hotel revenues. However, it would be interesting to explore through further research the correlation between public money invested and accommodation taxes collected, to understand the nature of this connection.

In the article, the impacts of events in the Upscale, Upper Upscale and Luxury categories have been analyzed with conclusive results. Both parameters studied, OR and ADR, increase depending on the celebration of festivals and events. ADR and OR in hotels are strongly related affecting all types of hotels positively.

Moreover, while seasonality affects ADR and OR, events contribute to overcoming Low season effects in OR within the local Chicago hotel industry. It can be stated that hoteliers have the confidence of increasing the ADR when any type of event is organized in the city, in Medium and High seasons and OR increases significantly. Nevertheless, during the Low season the increases in prices are only appreciated for Upper Upscales hotels. Upscales hotels tend to keep the prices and Luxury hotels even decrease them. This behavior could be explained by the higher bargaining power of event organizers and meeting planners in Low season. Nevertheless, the hotels' goal of increasing OR in Low season is accomplished in three categories when there is an event.

Another relevant finding worth pointing out is the fact that Chicago as a destination presents a fair balance between business and leisure events, since no significant differences occurred in expected values of ADR and OR between weekend or bank days and week days when comparing days on which events occurred versus days on which they didn't.

All the three hotel categories increase their OR in a similar amount when an event occurs. Though, the behavior of ADR is more heterogeneous, being the higher changes in Upscale hotels and the lower in Luxury hotels because of their lower price elasticity service profile.

The vast majority of tourists arriving in the city to participate in festivals and events stay in Upper Upscale and Upscale hotels, as expected. Therefore, Luxury category hotels are less dependent on the organization of these

events, both in their OR and in their ADR. In Medium and High Season hotels OR and ADR are less exposed to wide fluctuations. Therefore, it can be said that the strategy of organizing festivals and events in the city of Chicago contributes to fighting destination structural seasonality.

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