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HOTEL DEMAND BEFORE, DURING, AND AFTER: EVIDENCE FROM CHARLOTTE, NORTH CAROLINA

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ABSTRACT

This paper examines the hotel room market in Charlotte, North Carolina over the period 2005-2013 to assess the impact of a wide variety of political and sporting events that were held in the city and the surrounding area. Our analysis considers the effects of various sporting and political events in and around Charlotte on the number of hotel rooms let, the average daily rate of rooms let, and the daily total revenue generated by hotel registrations. While it is of interest what happens to the overall Charlotte Metropolitan Statistical Area, we use disaggregated data to measure the net impacts of these various events on Charlotte Center City hotels, Charlotte Metro hotels, and Charlotte Suburb hotels before and after events occur. These granular effects are important in the context of the hotel taxes collected to help pay for the Time Warner Cable Arena, recent upgrades to the Bank of America Stadium, and the NASCAR Hall of Fame.

Hotel Demand Before, During, and After: Evidence from Charlotte, North Carolina

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Abstract

This paper examines the hotel room market in Charlotte, North Carolina over the period 2005-2013 to assess the impact of a wide variety of political and sporting events that were held in the city and the surrounding area. Our analysis considers the effects of various sporting and political events in and around Charlotte on the number of hotel rooms let, the average daily rate of rooms let, and the daily total revenue generated by hotel registrations. While it is of interest what happens to the overall Charlotte Metropolitan Statistical Area, we use disaggregated data to measure the net impacts of these various events on Charlotte Center City hotels, Charlotte Metro hotels, and Charlotte Suburb hotels before and after events occur. These granular effects are important in the context of the hotel taxes collected to help pay for the Time Warner Cable Arena, recent upgrades to the Bank of America Stadium, and the NASCAR Hall of Fame.

JEL Classifications: H71, Z23, Z28

Keywords: hotel occupancy, sports events

1. Introduction

Since the academic literature on the economic impact of sports or other events is vast, it is worth calling immediate attention to this paper's contributions. This paper is the first to use daily hotel occupancy data over a long period to investigate the net impacts of political and sporting events on hotel demand, room prices, and total daily hotel room revenue in a large city in the United States. High frequency data allow for granular estimates of visitor inflows net of any crowding out or displacement effects (Porter 1999).

While the use of high frequency hotel occupancy data improves upon existing research in several ways, a notable limitation is that hotel occupancy data alone cannot capture any economic impact from visitor spending on food and drink, souvenirs, or other non-hotel goods and services. Such activities might be better captured using sales tax data as the measure of economic activity generated by sports (e.g., Coates and Depken, 2011).

Secondly, we are able to test a long-touted assumption that major political and sporting events are a spur for broader tourism spending before and after the event as visitors arrive several days before the event or stay several days after the event. Our long time series allows us to test for whether there are statistically significant impacts on hotel demand during the days leading up to or following the events analyzed thereby giving a more complete understanding of the economic effects of sports events and any external benefits they may generate or external costs they may impose.

Thirdly, we are able to geographically distinguish between hotels that are close to the venues, those that are at an intermediate distance from the venues, and those that are at some distance from the venues although still within the metropolitan statistical area. This last point is important because the metropolitan area's core county has a hotel occupancy tax that is dedicated to pay for debt service associated with a football stadium, a basketball arena, and a sports hall of fame. However, there are many hotels in neighboring counties that are within driving distance of the various venues that are not subject to the hotel occupancy tax being used to fund the facilities. Therefore, the geospatial distribution of hotel rentals for various events can have important tax implications for other jurisdictions which have a limited area of tax collection relative to the broader hotel market.

To preview our empirical results, we find distinctly different impacts of different sporting events both in terms of magnitude, geospatial distribution, and temporal distribution of hotel rentals across many sporting and political events. The claims that many events draw tourists for

multiple days before and after the event are generally not supported; most events draw, at most, a statistically significant, if not overly large number of people, on the day before or after the event. Only large, multiple-day events such as a national political convention or a multi-day NASCAR event appear to generate significant net increases in hotel rentals in days before and after the event.

2. Literature Review

Studying variations in and factors affecting hotel occupancy is not new. Papers such as Andrew et al. (1990), Jeffrey and Hubbard (1994), and Jeffrey et al. (2002) are among many examining determinants of hotel occupancy. However, little attention has been paid to analyzing the interaction between hotel room rentals and sporting events, facilities, and franchises. Lavoie and Rodriguez (2005) use monthly hotel occupancy data from eight Canadian cities in the 1990s to study the effects of the 1994-1995 NHL lockout. Also included in their analysis are several events which affected some but not all of the eight cities in their study: the 1994 baseball players strike, the 1998 NBA lockout, and the departure or arrival of several NHL and NBA franchises. They find that the NHL lockout is associated with significant drops in hotel occupancy in three of the eight cities affected by the lockout, and in only 2 of the 9 cases are their results for the other labor market disruption or franchise arrival or departure events consistent with the hypothesis that sports events are associated with increases in hotel room occupancy. Their results are therefore broadly consistent with the literature summarized in Coates and Humphreys (2008), which concluded that the evidence of large economic benefits from sporting events is weak. Lavoie and Rodriguez's use of monthly hotel data, however, allows for the possibility that their data are not sufficiently granular for detecting real, though perhaps somewhat small, effects of sporting events in cities with large volumes of hotel rentals. For example, suppose the Toronto Maple Leafs play 10 home games in a certain month and that each game causes 500 people to have overnight hotel stays. The monthly total of 5,000 fans attributable to the hockey franchise might be difficult to isolate since there may well be more than one million hotel room rentals in Toronto in a given month.

Monthly hotel occupancy data are also used by Allmers and Maennig's (2009) analysis of the 1998 FIFA World Cup hosted by France and the 2006 FIFA World Cup played in Germany. Their results show no net impact on hotel stays arising from either tournament, though their finding that Germany had an increase of 708,000 overnight stays in June 2006 followed by a

drop of 738,000 stays in July 2006 suggests that the World Cup may have shifted the timing of tourist visits to Germany. (The tournament was played between June 9 and July 9; that the tournament straddles two months is another limitation of using monthly data and month dummy variables.)

Similarly, du Plessis and Maennig (2011) study the effect of the 2010 FIFA World Cup in South Africa using a simple comparison of hotel occupancy between June 10, 2010 and July 11, 2010 and a comparable period from the preceding year. (They also include a figure depicting daily hotel occupancy rates for three major cities during the tournament period but do not perform any analysis using the daily hotel occupancy data.) This back-of-the-envelope analysis concludes that South Africa's visitors for the World Cup fell well short of ex ante predictions.

Although he does not use hotel occupancy data, Coates (2009) uses monthly hotel tax revenue from South Carolina counties to examine the impact of Clemson University and University of South Carolina football games and NASCAR races at the Darlington track. Hotel tax revenue is a reasonable measure of tourism, but hotel taxes are typically levied as a percentage of room rental rates so hotel tax revenues reflect both any quantity increases and any price increases deriving from tourist visits for sporting events. Moreover, some of the price increases probably accrue to non-local owners rather than local input suppliers thereby introducing some noise into the use of hotel tax revenue as a measure of local economic impacts (Baumann et al. 2009). This paper's separate examination of the number of rooms occupied and the average rate charged for those rooms will allow us to separate any price and quantity effects associated with various events.

The literature also contains several papers using measures other than hotel occupancy to assess the economic effects associated with sports. A common approach is the use of airplane passenger arrivals to fairly isolated destinations hosting sports events. Nishio (2013) uses New Zealand's 1983-2005 monthly arrival data to analyze the effect of that country's hosting of the 1990 Commonwealth Games, a Cricket World Cup, a Rugby World Cup, two America's Cups, and tours by the British and Irish Lions rugby teams. The only event found to increase inbound traffic overall (i.e., from all countries combined) was the 1990 Commonwealth Games, though increases in inflows from participating countries were also detected for the 2000 Americas Cup (Switzerland) and the 2005 British and Irish Lions rugby tour. Again the limitation of using monthly data is evident, as all events analyzed by Nishio (2013) span two or more months (albeit by just two days in a couple of cases). However, Nishio's month dummies for each event are

defined to take a value of unity for only a single month for each event (e.g., only June 1983 for the British Lions tour which ran from May 15 to July 16).

Baumann et al. (2009) examine the relationship between daily airline passenger deplanings in Hawaii between January 2004 and May 2008 and sports events such as the NFL Pro Bowl, two NCAA football bowls, various PGA Tour events, Honolulu and Maui Marathons, and the Ironman Triathlon. Only the NFL Pro Bowl and the Honolulu Marathon are found to have significant increases in passenger arrivals. Their empirical strategy explicitly allows for passenger arrivals several days before the actual events and is therefore most similar to our analysis of leading and lagging effects presented below. However, the use of airplane arrivals is less useful for analyzing the economic impact of events held in locations in which tourists do not arrive solely by air.

3. Data and Empirical Strategy

The data employed in this study include the daily number of hotel rooms let in the Charlotte-Gastonia-Concord, NC-SC metropolitan statistical area (MSA), the average daily rate charged for the rooms let on a given day, and the total revenue generated by hotel room rentals on a given day. The Charlotte-Gastonia-Concord, NC-SC MSA is comprised of ten counties, three of which are located in South Carolina, The largest county in the MSA is Mecklenburg county (in which the city of Charlotte is located). In 2015, the MSA had a population of approximately 2.2 million of which one million reside in Charlotte (US Census Bureau, 2016).

Charlotte hosts two professional franchises, the NBA Charlotte Hornets (formerly Bobcats) and the NFL Carolina Panthers, and therefore hosts regular season (and occasionally post-season) NBA and NFL games. The Charlotte MSA is also home to the Charlotte Motor Speedway (formerly Lowes Motor Speedway) which hosts three major NASCAR races each year. The MSA also hosts a PGA golf tournament, a marathon, and several college football bowl games and basketball tournaments every year, and is home to Charlotte-Douglas International Airport (24th busiest in the world by passenger count). Charlotte is in the rotation to serve as a regional host for the NCAA basketball tournament, and the city hosted two major political events in recent years: the 2012 Democratic National Convention and the National Rifle Association's 2010 convention (see Table 1 for a complete listing of all events included in this study.) Hence, Charlotte provides an interesting area for analyzing the economic impact of sporting and political events using hotel occupancy data.

The hotel data were obtained from STR, a privately held firm that specializes in gathering daily occupancy data from hotels around the world. In addition to aggregate data on hotel rooms let, average daily rooms rates, and daily hotel revenue for the entire metro area, we split the data into three subsamples: those hotels located in the center city of Charlotte (ZIP code 28202), those hotels located within three STR data tracts that contain only hotels located within the city of Charlotte (less the ones located in ZIP code 28202), and those hotels located within three STR data tracts that are essentially the Charlotte suburbs. Most of the hotels in the suburban subsample lie within the Charlotte MSA but not within Mecklenburg County; we discuss the significance of this point later in the paper.

Having three geographic subsamples allows us to examine the effect of various events on different parts of the metropolitan area. Events in Charlotte tend to be distributed between the city center where Bank of America stadium and Time Warner Cable arena are located (along with the city's convention center and the NASCAR Hall of Fame) and the suburban city of Concord, located about 15 miles north of the city center) where Charlotte Motor Speedway (CMS) is located. Hence, events such as the CIAA (Central Intercollegiate Athletic Association) basketball tournament, which draws a large crowd to downtown Charlotte, might have different effects from NASCAR races held at CMS.

Because many events in Charlotte are highly localized in the city center, a parameter from the full sample might be biased downward because the preponderance of the impacts of the event are localized. Moreover, a parameter from the full sample might mistakenly suggest that an event has a wide-spread impact in the MSA when, in reality, it does not. On the other hand, including data for the entire metro area lets us capture any spatial displacement effects that may be caused by large events in downtown Charlotte. For example, large crowds attending the CIAA tournament might cause some travelers who would stay downtown to choose hotels located outside the city center. Looking only at city center data might lead to the erroneous conclusion that any such travelers simply abandoned their plans for overnight stays in Charlotte.

While any event can be associated with a number of hotel rooms rented before, during, and after the event, it is important that any empirical analysis control for what would be considered normal hotel registrations in the region on a given month and day of the week when an event is not happening. Proper accounting for economic impacts of an event focuses on *net* impacts rather than *gross* impacts, so it is important to establish a baseline to which hotel registrations, room prices, and total revenues can be compared. Our empirical analysis does so

by analyzing a long time series of hotel registrations, daily rates, and daily revenues, while controlling for geospatial distribution of hotel activity across various sporting and political events that occur in the Charlotte region.

With these caveats and warnings in mind, we estimate a time series model of the form:

$$DEP_{lt} = \beta_0 + \sum_{i=1}^{M} \beta_i EVENT_{it} + \sum_{j=1}^{L_i} \theta_j EVENT_{it-j} + \sum_{k=1}^{K_i} \varphi_k EVENT_{it+k} + \delta_1 REALGASPRICE_t + \delta_2 UNEMPLOYMENT_t + \gamma_1 DAY + \gamma_2 MONTH + \gamma_3 YEAR + u_t, \quad (1)$$

where DEP_{jt} is one of three dependent variables investigated herein: *DEMAND*, which reflects the actual number of rooms let on a given day, *ADR*, which reflects the average daily rate charged for the rooms let on a given day, and *TR*, which measures the total revenue generated by hotel registrations on a given day (both *ADR* and *TR* are measured in real terms, in November 2014 prices). Each dependent variable is distinguished by its geographic reach *l*: Center City (CC), Charlotte City (CLT), Charlotte Suburbs (SUB), and the Charlotte MSA (MSA). The β's, δ's and γ's are parameters to be estimated, ε is a zero-mean error term, and *t* indexes daily from January 1, 2005 through November 30, 2014. There are *M* events included in the analysis and for each day on which event takes place the associated *EVENT* dummy variable takes a value of one and is zero otherwise.[1] As noted earlier, the events included in our sample and the number of days during the sample period associated with each event is provided in Table 1. We also indicate those events that are multiple day events such as the 2012 Democrat National Convention, NASCAR and PGA events, and college basketball tournaments. As can be seen, the most common sporting event to take place in the city of Charlotte is a regular season NBA game, followed by NFL regular season games, NASCAR events, the annual CIAA annual basketball tournament, and PGA Tour tournaments. The rarest events include NFL and NBA postseason games.

Tourism promoters often claim that major events encourage individuals to come to the host city early and/or to stay in the host city after the event has concluded so to enjoy other tourist attractions in the area. On the other hand, it is also possible that large events deter people who might visit in the days leading up to or immediately following major events. Such effects might occur if a large event creates congested traffic or security concerns. Thus, equation (1)

[1] We remind the reader that the parameter on any particular $EVENT_{it}$ reflects a *net* change in hotel demand, average daily rates, or total revenue on a given day relative to the long-term trends and seasonality inherent in hotel occupancy data.

includes leads and lags of the various events to test for such effects in hotel registrations, average daily rates, and total revenue.

As additional controls for factors that might affect hotel occupancy, we include the real price of a gallon of gasoline the month during which the event took place (*REALGASPR*), the national unemployment rate the month during which the event took place (*UNEMP*), a vector of day of week dummy variables (*DAY*) where Sunday is the reference category, a vector of month of the year dummy variables (*MONTH*) where January is the reference category, and a vector of year dummy variables (*YEAR*) where 2005 is the reference category. Also included is a dummy variable for days with measurable snowfall in Charlotte. Since the city has a busy airport and lies on two interstate highways, disruptive snow events might affect hotel demand. Lastly, a dummy variable taking a value of one for all days after May 1, 2006 is included to control for an increase in Mecklenburg County's hotel occupancy tax beginning on that date. (The tax, imposed as part of financing the NASCAR Hall of Fame, is discussed below.)

The descriptive statistics for the three dependent variables and the two continuous explanatory variables are reported in Table 2. The average number of hotel rooms let on a given day in Charlotte, North Carolina, during the sample period, was 19,210 rooms with a minimum number of rooms let of 6,876 on December 24, 2008, and a maximum number of rooms let of 31,229 on March 2, 2013. During the sample period the average daily rate charged per room was $87.94 with a minimum of $63.13 on January 2, 2005 and a maximum of $216.45 on September 3, 2012 (the first day of the 2012 Democrat National Convention[2]). The average daily revenue for the Charlotte MSA is $1.72 million with a minimum of $0.49 million and a maximum of $6.51 million. During the sample period the average real price of gasoline was $3.25 and the average unemployment rate was just under seven percent

4. Estimation Results

Estimation results for the net impacts of various events on hotel registrations, average daily rates, and total revenue are reported in Table 3, Table 4, and Table 5, respectively. Estimation is via OLS, with Newey-West standard errors with seven lags to control for serial correlation. In each

[2] The 2012 Democrat National Convention started on September 3 with the highest average daily rate during the sample period. The second day of the National Convention had an average daily rate of $210.48; the third day had an average daily rate of $207.62; the fourth day had an average daily rate of $208.34. The first day after the convention was over the average daily rate was $108.43. The second day after the convention was over the average daily rate was $77.28, consistent with the sample average daily rate. Therefore, on the surface, the convention would appear to have been a windfall for Charlotte hoteliers.

table, the first column reports the results for the subsample of hotels located in the City Center, the second column reports the results for the subsample of hotels located the city of Charlotte, the third column reports the results for the subsample of hotels located in the Charlotte Suburbs, and last column reports the results for the entire Charlotte MSA. Therefore, in each table the spatial distribution of any net effects of various events on the hotel market can be ascertained. We describe the estimation results for the three dependent variables in sequence.

Daily Hotel Registrations

Table 3 reports the estimation results for daily hotel registrations. Because the total number of hotel rooms let in the entire MSA is the simple sum of the other three subsamples and all estimated equations have the same explanatory variables, the marginal impact for model (4) in Table 3 is the sum of the marginal impacts for model (1), model (2), and model (3) in Table 3. There is no discernable net impact of NASCAR Hall of Fame events on daily hotel registrations in any of the geographical subsamples and there is no discernable net impact on daily hotel registrations in the two days before and the two days after an event at the Hall of Fame. As the NASCAR Hall of Fame was originally pitched to the residents of Charlotte as a way to increase tourism to the city, these results suggest that the NASCAR Hall of Fame has underperformed in this dimension.

NASCAR races correspond with large net increases in daily hotel registrations. Two days before the race, hotel registrations increase approximately 350 rooms in the city of Charlotte and by 255 rooms in the Charlotte suburbs. One day before the race, total hotel registrations increase by approximately 2,600 across the Charlotte MSA with an increase of 875 rooms in the Charlotte suburbs. The greatest impact of NASCAR races occurs on race days. On the day of a race there is an increase of approximately 5,500 hotel registrations across the Charlotte MSA with 2,100 additional registrations in the suburbs. However, it does not appear that NASCAR fans stay in Charlotte after a race as total registrations in the Charlotte MSA fall approximately 2,600 the day after a race and by approximately 1,300 two days after a race.

The NASCAR All-Star race has a slight net negative impact on hotel registrations one and two days before the event, a large positive impact the day of the event, but no significant impact one and two days after the event.

The Democrat National Convention had the largest day-of-event impact on the Charlotte hotel market during the sample period. During the four days of the convention, the net impact on

hotel registrations was an average of 7,400 additional rooms per night, with an increase of approximately 3,500 rooms the day before the event. However, as in the case of NASCAR events, there was no discernable impact on hotel registrations one day and two days after the convention. The three-day NRA national convention corresponded with an increase of approximately 4,400 rooms the day before the event but no statistically significant net impact the days of the event or one or two days after the event.

Considering NFL games, preseason games have no net positive impact on hotel registrations and perhaps a slight negative impact the day before and the day after the game. On the other hand, NFL regular season games correspond to approximately 1,300 additional rooms the day before the game and 1,200 additional rooms the day of the game. However, there is no net impact the days after NFL regular season games. As for post-season games, there is no statistically meaningful impact the days before, the day of, or the days following a playoff game.

College football games have a sizeable impact on daily registrations the day before and the day after the events. The post-season bowl game corresponds with approximately 3,400 additional rooms the day before the game and 4,200 additional rooms the day of the game, and approximately 1,800 rooms the day after the game. However, there is no discernable impact of the bowl game two days before or two days after the game. The Atlantic Coast Conference's championship football game corresponds with an increase of approximately 3,100 additional rooms the day of the game but has no discernable net impact the days before or the days after the game.

The Southern Conference basketball tournament and the Atlantic Coast Conference basketball tournaments have no statistically significant net impacts on daily hotel registrations. However, the Central Intercollegiate Athletic Association's (CIAA) basketball tournament is associated with approximately 2,600 additional rooms the day before the tournament starts and with approximately 4,800 additional rooms for each of the four days of the tournament. However, there is a net decline of 2,200 hotel registrations the day after the tournament ends. The NCAA basketball tournament is associated with a (weakly) statistically significant increase in hotel registrations of approximately 2,200 for the two days of the event but has no discernable impact the days before or the days after the event.

The day before the Thunder Road Marathon is associated with an increase of about 330 rooms in the center city but a decline of approximately 750 and 515 rooms in the rest of the city and the suburbs, respectively. The day of the event corresponds to a similar decrease in hotel

registrations. The PGA tournament is associated with an increase of approximately 900 rooms during each of the four days of the event but there is no discernable change in hotel registrations the days before or the days after the event.

NBA regular season games are associated with a decline in hotel registrations of approximately 675 relative to similar days without an NBA game. There is also a decline in hotel registrations the day after an NBA regular season game but no discernable change in hotel registrations the days before an NBA regular season game. The two NBA post-season games during the sample period were associated with a decrease of 3,800 hotel rooms the day before but no discernable change the day of or the days following the games.

In the case of measurable snow-fall in Charlotte, there is an increase of approximately 1,300 rooms in the Charlotte MSA but there is no discernable change in hotel registrations the days before or the days after a snow event. The real price of gasoline, a proxy for the cost of travel, has no discernable impact on hotel registrations but the unemployment rate, a proxy for the overall health of the economy, is associated with decreased daily hotel registrations; for every one point increase in the unemployment rate, there are approximately 930 fewer daily hotel registrations in the Charlotte MSA.

In general, the results suggest that many events included in our study often have significant positive impacts on hotel registrations the day of the events, and sometimes the day before the events. However, there is little evidence of wide-spread tourism effects after the events take place. The additional rooms associated with the day before and day of the events evaporate in the days following the events. This suggests that there is little evidence to support the often-claimed pre- and post-event tourism effects.

Average Daily Rates

Table 4 reports estimation results for the average daily rate charged in the four geographic sub-samples for each of the two days before, the day of, and the two days after the events included in the sample. It is rather evident that those events which are associated with increases in hotel registrations are also generally associated with temporary increases in the average daily rate charged. This increase might occur simply because hotels take advantage of the increased demand and any lower price elasticity of those who are attending from outside Charlotte and

raise prices for otherwise lower priced rooms.[3] On the other hand, those who are attending the events might choose to stay in more expensive hotels than those who travel on non-event days, thereby increasing the average price charged on that day.

As is the case with hotel registrations, events at the NASCAR Hall of Fame have no impact on average daily rates charged in the days before, the day of, or the days after the event. On the other hand, NASCAR races are associated with an increase in average daily rates of approximately $14 on the day before the race and of $24 day of the race, but there is no statistically significant difference in average daily rates the days following a NASCAR race relative to non-race days. The NASCAR All-star race is associated with an increase in average daily rates of approximately $17 on the day of the race but with not statistically significant change in the days before or the days after the race.

The Democrat National Convention is the event associated with the largest increase in average daily rates charged. Across all geographic subsamples and over time, the average daily rates increased. For the entire MSA, the average daily rates increased approximately $20 two days before the convention, by $19 the day before the convention, by $57 on the days during the convention, and remained $15 above average the day after the convention. By the second day after the convention, average daily rates had returned to the average rates on non-convention days.

The National Rifle Association's national convention did not have as dramatic an impact on average daily rates charged; the average daily rates increased only in the city center by $17 and $22 the day before and the days of the convention, respectively. There was no statistically significant impact of the convention on the average daily rates charged in the rest of the city of Charlotte, in the Charlotte suburbs, or in the Charlotte MSA overall. This suggests that the impact of the NRA convention was very much concentrated in the city-center.

NFL pre-season games are not associated with statistically meaningful changes in average daily rates except for a slight decline in the Charlotte suburbs of $3 on the day of the game and $2 the day after the game. However, regular season games are associated with an increase of approximately $9 the day before the game in the center city ($2 the day before the game for the Charlotte MSA overall) and of $6 the day of the game in the center city ($3 the day of the game for the Charlotte MSA overall). Post-season NFL games were associated with a $31

[3] One hotel in Charlotte charged $49.95 for a standard room a week before the 2012 Democratic National Convention and increased the price for the same room to $495 during the convention (although we have no evidence of how many rooms were let at the increased price).

increase in the average daily rate charged in the city center the day of the game but had no statistically significant impact on average daily rates in the city center the days before or the days after the game. Furthermore, the post-season NFL games had no statistically significant impact on average daily rates charged in the Charlotte suburbs or the overall Charlotte MSA the days before, the day of, or the days after the game. Again, this suggests that the impacts of post-season NFL games are highly concentrated in the city center.

College bowl games are associated with increased average daily rates the day before and the day of the game in the city center ($36 and $50 increases, respectively), the day before, day of, and day after the game in the rest of Charlotte ($10, $12, $5 increases, respectively), the day of and the day after the game in the Charlotte suburbs ($3 and $2 increases, respectively), and the day before, day of, and day after the game in the Charlotte MSA ($14, $18, $4 increases, respectively). This suggests the college bowl game hosted in Charlotte has broader geographic and temporal impacts than other events in the sample. In contrast, the ACC championship football game has an impact on average daily rates charged in the city center the day before and day of the game ($40 and $52 increases, respectively) but is associated with a slight decrease in average daily rates charged in the Charlotte suburbs the day before the game ($5 decline), and is associated with an increase in average daily rate charged throughout the Charlotte MSA on the day of the game ($6 increase). Thus, the evidence would suggest that the ACC championship game has more concentrated impacts than the bowl game.

The Southern Conference basketball tournament is not associated with a statistically significant impact on average daily rates the days before, days of, and days after the tournament nor with average daily rates charged in the four different geographic areas. On the other hand, the Atlantic Coast Conference basketball tournament is associated with an increase in prices charged the days of and the day after the tournament in the center city ($31 and $34 increases, respectively) and with a slight increase in average daily rates charged throughout the Charlotte MSA on the day after the tournament ($12 increase).

As was the case with hotel registrations, the CIAA basketball tournament is associated with increases in the average daily rates the two days before and the days of the tournament in the center city ($18, $34, $48 increases, respectively), the two days before and the days of the tournament in in the rest of Charlotte ($5, $15, $23 increases, respectively), the day before and the days of the tournament in the Charlotte suburbs ($6 and $9 increases, respectively), and the two days before and the days of the tournament in the overall Charlotte MSA ($5, $13, $20

increases, respectively). However, there is evidence of a crowding-out effect in that this is the one event where the average daily rate charged in the days following the tournament fall relative to non-tournament associated days. In all four regions, the prices fall the two days after the tournament ends. The greatest decline occurs in the city center ($20 and $13 declines the day after and two days after the tournament ends, respectively), the next largest declines are in the rest of Charlotte ($9 and $5 declines, respectively), with the smallest declines occurring in the Charlotte suburbs ($4 decline the day after the event but no statistically significant difference the second day after the event). Across the entire Charlotte MSA, average daily rates fall by $10 and $5 the day after and the second day after the event, respectively.

The NCAA basketball tournament is not associated with any statistically significant changes in average daily rates charged across time (relative to the tournament days) or across the four geographic areas. Likewise, the marathon and the PGA tournament are not associated with any statistically significant changes in average daily rates charged throughout the Charlotte MSA. NBA regular season games are associated with a slight decline in average daily rates charged throughout the Charlotte MSA the day of and the day after the game ($1.45 and $1.07 declines, respectively) and the NBA post-season games are not associated with any statistically significant change in average daily rates charged. Finally, snow events are presaged by increases in average daily rates two days and one day before the event in the city center ($6 and $9 increases, respectively) but with no statistically significant changes in average daily rates the day of or the days following a snow event. Furthermore, there is no statistically significant impact of a snow event on average daily rates charged in the Charlotte suburbs or the overall Charlotte MSA.

Increases in the national unemployment rate are generally associated with declines in average daily rates charged in the city center, throughout Charlotte city, and throughout the Charlotte MSA (but interestingly not in the Charlotte suburbs). The price of gasoline is not statistically significantly related to average daily rates charged throughout the Charlotte MSA.

Real Daily Hotel Revenue

Table 5 reports estimation results with real total revenue (measured in millions of dollars) as the dependent variable. These results are useful in the debate over public subsidies toward the tourism sector. As the city of Charlotte has an *ad valorem* tax of 8% on hotel rooms, the impact of events on total hotel revenues provide the opportunity to calculate an estimated impact of

these events on tax revenues to the city of Charlotte and other cities in Mecklenburg County.[4] Furthermore, the hotels designated as being in the Charlotte suburbs are outside of Mecklenburg County and therefore any tax revenues generated do not help service the debt associated with the NASCAR Hall of Fame.

As can be seen in Table 5, those events associated with net increases in hotel registrations and with increases in average daily rates are also associated with increases in daily revenues. However, unlike in the case of daily registrations or average daily rates, total revenues seem to be more volatile over time and across geographic regions. For instance, a NASCAR race is associated with an increase of approximately $200,000 in additional revenues the day before and the day of the race in the center city, which would correspond with an increase in hotel occupancy tax revenue of $16,000. However, in the two days after the race the total revenues in the center city decline by about $92,000 relative to non-race related days, which would correspond with a decline in hotel occupancy tax revenue of approximately $7,300. Therefore, the net impact of the NASCAR race on center-city hotel tax revenues is more appropriately calculated as only $8,700.

Likewise, in the rest of Charlotte a NASCAR race is associated with an increase in hotel revenues of approximately $700,000 the day before and the day of the race (yielding an increase in hotel occupancy tax revenue of approximately $56,000) but the two days after the race total revenues decline by approximately $140,000 (yielding a decrease in hotel occupancy tax revenue of approximately $11,000). Therefore, the net impact of a NASCAR race on total hotel occupancy tax revenue in the rest of Charlotte is more correctly calculated as approximately $45,000).

Those hotels in the Charlotte suburbs also experience an increase in hotel revenues the two days before and the day of the event of approximately $720,000 but a decrease in the hotel revenues the two days after the race of approximately $100,000. Thus, the counties in which these suburban hotels reside would experience a similar lower net impact of the NASCAR races as in Mecklenburg County.

The Democrat National Convention provided the largest impact on daily hotel revenues of any of the events in the sample. For the city center, daily hotel revenues increased by

[4] The eight percent lodging tax is allocated as follows: three percentage points are directed to the city of Charlotte for convention center facilities, three percentage points are distributed to various other cities in the Mecklenburg County for tourism-related expenditures, and two percentage points allocated to servicing the debt incurred to build the NASCAR Hall of Fame.

approximately $600,000 for each of the four days of the convention with no statistically significant decline in revenues in the days after the convention. Thus, for center-city hotels, the convention would have contributed an additional $192,000 in hotel tax revenue to Mecklenburg County. For the rest of the city of Charlotte, the convention increased hotel revenues by approximately $1m in the two days before the event and by $1.4 million for each of the four days of the convention and by $173,000 the day after the convention (by the second day after the convention there was no statistically significant difference in hotel revenues). Therefore, for the hotels not in the city-center the convention might have contributed approximately $542,000 in additional hotel tax revenue. For the entire MSA, the total net impact of the convention on hotel revenues is estimated to have been approximately $13.15 million.

NFL preseason games are associated with an increase in hotel revenues in the city center by approximately $42,000 the day of the game and with reduced revenues the day before, day of, and day after the game in the suburbs (by approximately $150,000). NFL regular season games are associated with an increase in hotel revenues the day before and the day of the game in the city center (approximately $186,000) and in the rest of Charlotte (approximately $108,000) but with no impact in the suburbs. NFL post-season games are associated with an increase in hotel revenues the day before and the day of the game only in the center city (approximately $460,000). Combined, the standard NFL season of two pre-season games and eight home games contribute approximately $232,000 net increase in hotel tax revenues to Mecklenburg County.

The four-day CIAA basketball tournament has a statistically significant net impact on hotel revenues the days before, the days during, and the days after the tournament. The tournament corresponds to an average net increase in hotel tax revenue of approximately $292,000, which is greater than the estimated impact of the NFL regular season. The two-days of the NCAA basketball tournament correspond to a net increase in hotel tax revenue of approximately $20,000. The single day of the ACC football championship game and the post-season college bowl game correspond with an average net increase in hotel tax revenue of $42,000 and $93,000, respectively.

The takeaway from these estimation results is that the net impact of events are varied; there is no generalized impact of events on tourism activity as reflected in hotel registrations. Some events have large net positive impacts on hotel registrations and revenues whereas other events have no net impact on hotel registrations and revenues, still other events might have a net negative impact because of crowding out effects.

5. Discussion

As noted by Baumann et al. (2009), one reason that traditional economic impact forecasts are often overstated is that revenue gains from price increases often flow to out-of-town business owners rather than recirculating locally. Here we use our price and total revenue estimates to provide a back of the envelope calculation illustrating this point. Recall that NASCAR races are associated with average daily rate increases of about $24 and hotel revenue increases of about $1.08 million. Multiplying the $24 price increase by the mean number of rooms rented each day (about 19,200) yields about $461,000, a figure which is approximately 43% of the $1.08 million increase in revenue. If, as seems likely, most hotel owners are not Charlotte residents, then any multiplier effects assumed to accompany the $1.08 million increase in hotel revenue are likely nearly twice as high as they should be.

Another implication of our results is the ability to discuss spatial externalities associated with some events. Hotel rooms located within Mecklenburg County are subject to an 8% occupancy tax which, in part, services the debt for the various sporting venues in the city of Charlotte along with the NASCAR Hall of Fame. The evidence suggests that the NASCAR Hall of Fame does not have any statistically significant impact on hotel demand, average daily rates, or total revenue. However, the various other events that do increase hotel revenues contribute additional hotel room tax revenue that is used to service the debt incurred to build the Hall of Fame; thereby generating a positive externality for the Hall of Fame. Of course, the impact can be in reverse. Events that take place in Mecklenburg County but generate net increases in hotel registrations and revenues outside Mecklenburg County fail to generate hotel room tax revenue to help service the debt for the Hall of Fame and other venues within the city, that is, these events generate a negative externality for the Hall of Fame. That such positive and negative externalities exist point to the difficulty of aligning the taxes used to subsidize facilities with the benefits associated with the events held in those facilities.

6. Conclusions

Tourism promoters, sports franchise owners, and local political officials often claim that sporting and cultural events increase tourism before, during, and after the event. In the past, such claims were hard to confirm or dispute because of a paucity of appropriate data. This paper provides the first, to our knowledge, study of daily hotel registrations, average daily rates charged, and daily

hotel revenues over a substantial period of time. Focusing on Charlotte, North Carolina and its surrounding Metropolitan Statistical Area, we estimate the impact of various sporting and political events in the city to the aforementioned measures of hotel demand.

We differentiate between hotels located in the city center, near the two major venues in the city (Time Warner Cable arena and Bank of America stadium), the rest of Mecklenburg county, the Charlotte suburbs (located outside of Mecklenburg county), and the entire MSA. We further differentiate between two days before, one day before, day of, day after, and two days after each event in our analysis. This allows us to test whether and to what extent events have any greater tourism draw than the event itself.

The estimation results show that that several events, particularly NASCAR races, an annual college basketball tournament, and the Democratic National Convention, have substantial effects on the number of rooms let, the average daily rate charged, and the total revenue generated in the hotel industry. This, in turn, suggests that these events provide substantial net increases to the hotel room tax revenue generated within Mecklenburg County. These events all share a common trait: they are multiple-day events for which a substantial number of people come from out of town and stay for multiple nights during the event.

Other events, such as college bowl games and NFL games, have a day before and day of effect on hotel rooms and hotel revenues but do not exhibit any net impact two days before or two days after the events. Still other events, such as NBA regular season games, are not associated with a net increase in hotel registrations or hotel revenues the days before, the day of, or the days after the event.

The rhetoric of event promoters often implies that all events are expected to encourage visitors to come days before the event or stay for days after the event. The estimation results for Charlotte show that there is no common theme to the temporal or geographic impact of events on hotel registrations and hotel revenues. Some events have positive tourism effects, some have negative "crowding out" effects, and still others have no net impact on hotel registrations even during the event. Thus, the evidence suggests that increased tourism, and associated increased tourism-related tax revenue, is a rather tenuous reason to justify public subsidies of venues and events.

We are able to identify hotel registrations, average daily rates, and hotel revenues across tax jurisdictions within the Charlotte MSA. Events within Mecklenburg county that generate net increases in hotel registrations, average daily rates, and hotel revenues in counties other than

Mecklenburg, represent a loss in hotel tax revenue within Mecklenburg county. Events held outside of Mecklenburg county, such as NASCAR races held at Charlotte Motor Speedway, can generate net increases in hotel registrations and hotel revenues within Mecklenburg county, leading to net increases in hotel room tax revenue for Mecklenburg county. These cross-jurisdiction effects highlight the difficulty in aligning the taxes used to subsidize venues and events with the benefits generated by those venues and events.

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Table 1: Counts of Event Days in Sample

Event	Number of Event Days
NASCAR Hall of Fame[a]	5
NASCAR Event[b,c]	54
NASCAR Allstar Race	9
Democrat National Convention [c]	4
NRA Convention [c]	3
NFL Preseason	20
NFL Regular Season	78
NFL Postseason	1
NCAA Bowl Game	8
ACC Football Championship	4
NCAA Basketball Tournament [c]	4
Southern Conf. Basketball Tournament [c]	4
ACC Basketball Tournament [c]	4
CIAA Basketball Tournament [c]	51
NBA Regular Season	288
NBA Postseason	2
Marathon	10
PGA Tournament [c]	40
Tropical Storm	2
Snow Event	12
Notes: Sample period from January 1, 2005 through November 30, 2014. Sample size is 3,617 observations. [a] includes the grand opening of the Hall of Fame and annual induction ceremonies, [b] includes NASCAR Sprint Cup, Nationwide, and Camping World Truck Series races, [c] multi-day event.	

Table 2: Descriptive Statistics of the Sample

Variable	Mean	Std. Dev.	Min	Max
Center City Rooms	2,439	805	335	3,845
Charlotte Metro Rooms	9,435	2,123	3,324	15,034
Charlotte Suburbs Rooms	7,335	1,776	2,847	12,824
Charlotte MSA Rooms	19,210	4,489	6,876	31,229
Charlotte City Daily Rate ($US)	144.73	23.50	86.04	323.62
Charlotte Metro Daily Rate ($US)	79.01	12.28	53.03	226.32
Charlotte Suburbs Daily Rate ($US)	80.28	9.00	60.93	173.19
Charlotte MSA Daily Rate ($US)	87.94	12.00	63.13	216.45
Center City Daily Revenue ($US m)	0.36	0.15	0.03	1.18
Charlotte Metro Daily Revenue ($US m)	0.76	0.26	0.21	3.27
Charlotte Suburbs Daily Revenue ($US m)	0.59	0.19	0.19	2.14
Charlotte MSA Daily Revenue ($US m)	1.72	0.58	0.49	6.51
Real Gasoline Price ($US)	3.25	0.51	1.89	4.37
Unemployment Rate	6.96	1.89	4.40	10.00
Notes: Sample period from January 1, 2005 through November 30, 2014. Sample size is 3,617 observations.				

Table 3: Net Impact of Events on Daily Hotel Registrations

VARIABLES		(1) Center City	(2) Charlotte Metro	(3) Charlotte Suburbs	(4) Charlotte MSA
NASCAR Hall of Fame[a]	Two Leads	121.686	230.898	-19.903	346.015
		(193.278)	(428.043)	(320.826)	(841.778)
	One Lead	55.017	631.317	2.101	706.807
		(234.177)	(522.785)	(381.826)	(1,029.461)
	Day of Event	135.453	885.323	18.270	1,053.967
		(243.351)	(544.727)	(394.471)	(1,073.151)
	One Lag	-85.728	384.074	-61.260	237.232
		(229.795)	(513.203)	(374.443)	(1,010.664)
	Two Lags	12.818	159.785	81.011	239.225
		(190.383)	(421.925)	(315.631)	(829.851)
NASCAR Race[b]	Two Leads	-22.039	347.227**	255.875**	545.978
		(77.230)	(170.907)	(128.458)	(336.062)
	One Lead	339.959***	1,466.470***	875.537***	2,635.882***
		(99.465)	(221.745)	(162.805)	(436.571)
	Day of Event	556.065***	2,945.135***	2,146.462***	5,587.433***
		(104.486)	(234.787)	(167.919)	(462.846)
	One Lag	-426.877***	-1,109.904***	-995.216***	-2,577.025***
		(103.854)	(231.756)	(169.573)	(456.350)
	Two Lags	-162.692*	-641.121***	-517.077***	-1,338.820***
		(85.788)	(189.823)	(142.708)	(373.249)
NASCAR All-star Race	Two Leads	-211.568	-816.294**	-604.962**	-1,648.950**
		(159.503)	(353.322)	(264.668)	(694.862)
	One Lead	-31.351	-560.049	-627.977**	-1,245.325
		(193.606)	(432.516)	(315.172)	(851.805)
	Day of Event	705.010***	2,968.956***	2,550.387***	6,173.271***
		(204.385)	(456.877)	(332.318)	(899.877)
	One Lag	86.163	209.376	385.508	610.267
		(191.022)	(425.611)	(312.862)	(837.840)
	Two Lags	121.252	76.259	69.610	208.540
		(146.122)	(323.365)	(242.972)	(635.842)
Democrat National Convention[c]	Two Leads	-238.691	405.583	467.500	775.555
		(366.529)	(816.753)	(601.615)	(1,607.988)
	One Lead	309.165	1,789.861**	1,348.690**	3,469.843**
		(330.583)	(730.112)	(552.906)	(1,435.223)
	Day of Event	1,159.723***	3,529.568***	2,738.750***	7,460.919***
		(331.557)	(731.749)	(555.455)	(1,438.280)
	One Lag	-143.880	-211.928	302.652	3.477
		(330.613)	(730.180)	(552.955)	(1,435.356)
	Two Lags	-578.820	-997.115	-1,128.257*	-2,529.354
		(363.077)	(808.219)	(597.057)	(1,590.885)
	Two Leads	303.316	628.859	-381.873	561.910
		(371.464)	(824.144)	(614.808)	(1,621.282)

	One Lead	548.430	2,816.880***	1,068.460*	4,403.233***
		(375.041)	(830.244)	(624.581)	(1,632.738)
NRA Convention[c]	Day of Event	263.749	1,212.314	831.854	2,298.461
		(336.214)	(741.152)	(564.295)	(1,456.438)
	One Lag	-50.239	178.031	-99.419	14.513
		(374.528)	(829.036)	(623.840)	(1,630.338)
	Two Lags	41.491	56.145	-233.850	-203.609
		(373.863)	(829.701)	(618.410)	(1,632.293)
	Two Leads	-107.677	-56.361	-136.367	-304.769
		(96.278)	(213.045)	(160.105)	(418.912)
	One Lead	-44.276	-400.943	-403.671**	-860.578*
		(116.962)	(260.649)	(191.417)	(513.114)
NFL Pre-season Game	Day of Event	391.963***	-101.851	-433.883**	-156.055
		(122.222)	(273.038)	(198.931)	(537.720)
	One Lag	-191.241	-411.202	-345.446*	-963.328*
		(117.237)	(261.274)	(191.817)	(514.344)
	Two Lags	36.919	-72.433	1.629	-45.029
		(96.756)	(214.124)	(160.834)	(421.036)
	Two Leads	-57.850	-191.020	2.983	-257.741
		(53.294)	(117.902)	(88.661)	(231.820)
	One Lead	487.376***	649.285***	255.708**	1,373.298***
		(65.467)	(145.841)	(107.201)	(287.085)
NFL Regular Season Game	Day of Event	599.834***	546.927***	90.794	1,218.600***
		(68.467)	(152.850)	(111.575)	(300.988)
	One Lag	54.096	70.699	118.632	229.284
		(65.080)	(144.972)	(106.583)	(285.373)
	Two Lags	-7.681	38.947	73.591	82.543
		(52.183)	(115.451)	(86.796)	(227.003)
	Two Leads	606.925	-693.857	-373.743	-487.972
		(424.212)	(939.556)	(704.062)	(1,847.730)
	One Lead	795.304	-862.007	-1,389.835*	-1,521.556
		(509.980)	(1,138.647)	(831.320)	(2,242.260)
NFL Post Season Game	Day of Event	1,179.627**	1,466.375	-1,316.948	1,247.462
		(531.621)	(1,190.106)	(861.545)	(2,344.627)
	One Lag	1,368.684***	306.035	144.248	1,734.059
		(509.610)	(1,137.773)	(830.792)	(2,240.523)
	Two Lags	735.829*	520.014	430.651	1,623.493
		(423.609)	(938.208)	(703.075)	(1,845.074)
	Two Leads	208.399	169.043	230.722	806.578
		(152.070)	(336.694)	(252.564)	(662.104)
	One Lead	1,243.736***	1,839.714***	77.258	3,417.095***
		(183.477)	(409.344)	(299.576)	(805.993)
College Bowl Game	Day of Event	1,343.979***	2,351.519***	269.974	4,202.790***
		(192.437)	(430.539)	(312.301)	(848.126)
	One Lag	51.952	993.092**	535.500*	1,840.855**
		(182.936)	(408.337)	(298.438)	(804.082)
	Two Lags	-253.938*	56.489	-137.643	-152.349
		(151.666)	(336.076)	(251.570)	(660.996)

	Two Leads	-130.919	-264.648	-213.129	-766.774
		(213.511)	(472.934)	(354.305)	(930.088)
	One Lead	470.024*	-392.190	-934.622**	-1,086.503
		(256.257)	(572.000)	(417.972)	(1,126.352)
ACC Championship Game	Day of Event	723.537***	2,495.233***	211.378	3,110.007***
		(269.066)	(602.153)	(436.355)	(1,186.241)
	One Lag	-563.081**	-393.656	-431.034	-1,691.856
		(257.251)	(574.127)	(419.737)	(1,130.510)
	Two Lags	180.079	434.843	320.260	723.194
		(213.311)	(472.321)	(354.232)	(928.825)
	Two Leads	95.184	-661.244	-181.542	-701.664
		(436.149)	(966.452)	(724.186)	(1,900.870)
	One Lead	642.600	-251.356	-275.629	179.975
		(496.837)	(1,113.645)	(806.327)	(2,194.753)
SOCON Basketball Tournament[c]	Day of Event	476.202	647.809	-334.088	902.010
		(448.660)	(1,027.605)	(694.175)	(2,032.497)
	One Lag	189.768	364.952	-71.817	559.293
		(480.241)	(1,077.554)	(777.787)	(2,124.002)
	Two Lags	30.005	-73.239	-157.365	-157.176
		(416.819)	(923.927)	(691.669)	(1,817.339)
	Two Leads	19.617	-458.801	-18.690	-567.343
		(415.584)	(921.065)	(689.778)	(1,811.664)
	One Lead	-60.384	-67.100	150.882	-124.725
		(479.033)	(1,074.436)	(776.304)	(2,117.707)
ACC Basketball Tournament[c]	Day of Event	363.899	1,009.048	682.074	1,952.742
		(446.978)	(1,022.960)	(692.540)	(2,023.029)
	One Lag	951.240**	1,799.490*	1,102.057	3,794.130*
		(479.073)	(1,074.517)	(776.382)	(2,117.864)
	Two Lags	332.697	1,410.004	744.972	2,449.904
		(415.584)	(921.062)	(689.779)	(1,811.658)
	Two Leads	121.009	363.354	246.001	735.542
		(139.303)	(308.554)	(231.573)	(606.849)
	One Lead	220.890	1,406.094***	977.480***	2,613.134***
		(159.581)	(357.874)	(258.977)	(705.378)
CIAA Basketball Tournament[c]	Day of Event	495.227***	2,494.773***	1,894.459***	4,844.795***
		(142.926)	(328.887)	(219.193)	(651.046)
	One Lag	-521.529***	-1,052.994***	-597.848**	-2,232.667***
		(160.029)	(358.792)	(259.841)	(707.160)
	Two Lags	-182.252	-575.998*	-155.342	-947.166
		(141.315)	(312.996)	(234.944)	(615.580)
	Two Leads	51.053	415.384	41.400	523.469
		(257.762)	(571.155)	(427.571)	(1,123.334)
	One Lead	50.553	892.891	434.181	1,395.358
		(305.657)	(683.971)	(496.219)	(1,347.438)
NCAA Basketball Tournament[c]	Day of Event	470.926	1,197.571*	593.215	2,277.219*
		(308.806)	(689.040)	(505.415)	(1,356.842)
	One Lag	128.554	-200.058	274.810	233.416

		(305.773)	(684.244)	(496.382)	(1,347.978)
	Two Lags	-182.234	-587.113	-83.430	-826.461
		(257.918)	(571.503)	(427.822)	(1,124.020)
	Two Leads	97.015	-319.022	-281.155	-685.841
		(136.337)	(301.955)	(226.303)	(593.822)
	One Lead	326.399**	-763.816**	-515.215*	-1,197.690
		(166.096)	(370.702)	(270.994)	(729.951)
Marathon	Day of Event	145.498	-701.460*	-556.227**	-1,358.185*
		(174.196)	(389.809)	(282.536)	(767.911)
	One Lag	-167.042	-340.150	-301.450	-1,016.540
		(167.241)	(373.297)	(272.778)	(735.071)
	Two Lags	52.590	506.734*	335.679	762.770
		(138.718)	(307.201)	(230.279)	(604.128)
	Two Leads	232.468**	-66.598	-93.566	69.501
		(116.206)	(258.357)	(191.537)	(508.433)
	One Lead	4.614	117.875	132.326	254.378
		(105.684)	(233.425)	(176.715)	(458.860)
PGA Tournament[c]	Day of Event	-15.994	526.558**	405.558**	904.041*
		(106.415)	(234.932)	(178.143)	(461.790)
	One Lag	-41.605	44.090	105.646	92.208
		(105.936)	(233.922)	(177.208)	(459.816)
	Two Lags	163.857	180.383	250.655	569.141
		(116.911)	(259.774)	(192.934)	(511.172)
	Two Leads	-22.394	-18.291	49.152	-1.727
		(29.800)	(66.194)	(49.229)	(130.248)
	One Lead	-31.675	-159.384*	-27.591	-243.569
		(39.999)	(90.010)	(64.259)	(177.498)
NBA Regular Season Game	Day of Event	-36.253	-350.168***	-255.829***	-676.484***
		(42.460)	(96.047)	(67.444)	(189.569)
	One Lag	-47.361	-240.833***	-114.008*	-429.561**
		(40.056)	(90.143)	(64.348)	(177.763)
	Two Lags	-5.549	41.479	94.068*	115.447
		(29.875)	(66.360)	(49.356)	(130.574)
	Two Leads	-256.286	-772.000	-559.060	-1,514.011
		(363.943)	(806.525)	(603.561)	(1,586.286)
	One Lead	-695.368	-1,714.868*	-1,493.696**	-3,804.418**
		(431.155)	(964.977)	(699.707)	(1,901.087)
NBA Post Season Game	Day of Event	-258.234	-251.356	54.596	-380.552
		(435.486)	(971.817)	(712.627)	(1,913.720)
	One Lag	206.733	1,018.615	1,002.649	2,299.522
		(431.144)	(964.949)	(699.694)	(1,901.030)
	Two Lags	156.735	544.066	140.192	892.552
		(363.938)	(806.514)	(603.556)	(1,586.264)
	Two Leads	79.839	248.597	27.768	353.056
		(125.340)	(277.666)	(207.956)	(546.081)
	One Lead	-122.276	305.417	-204.706	-32.035
		(140.394)	(313.336)	(229.224)	(617.003)
Snow Event	Day of Event	22.364	1,336.155***	-39.023	1,319.209**

		(145.456)	(325.554)	(236.086)	(641.370)
	One Lag	46.299	621.277*	-82.970	581.764
		(144.985)	(323.423)	(237.011)	(636.817)
	Two Lags	-131.948	-70.439	20.704	-172.457
		(130.978)	(290.251)	(217.197)	(570.867)
Real Gasoline Price		78.709	176.523	194.816*	475.594
		(78.998)	(189.140)	(113.434)	(377.215)
Unemployment Rate		-78.884	-500.156***	-321.002***	-931.172***
		(57.725)	(137.093)	(83.953)	(272.990)
Constant		1,732.095***	9,684.954***	6,221.984***	17,741.518***
		(377.385)	(901.107)	(544.511)	(1,796.254)
R-squared		0.622	0.697	0.782	0.758

Notes: 3,617 observations used in each specification. a Includes grand opening and annual induction ceremony. b Includes Sprint Cup, Nationwide, and Camping World Truck Series events. c Multi-day event. Dependent variable in levels. Sample period from January 1, 2005 through November 30, 2014. Day of week, month of year, and year fixed effects included but not reported for brevity. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Net Impact of Events on Average Daily Rates ($US)

VARIABLES		(1) Center City	(2) Charlotte Metro	(3) Charlotte Suburbs	(4) Charlotte MSA
	Two Leads	2.318	-0.219	0.093	0.272
		(4.617)	(1.999)	(1.656)	(2.116)
	One Lead	5.080	1.722	2.155	1.945
		(5.728)	(2.481)	(2.015)	(2.641)
NASCAR Hall of Fame[a]	Day of Event	9.693	1.704	2.639	2.620
		(6.000)	(2.600)	(2.097)	(2.773)
	One Lag	3.361	1.068	0.810	0.719
		(5.629)	(2.438)	(1.978)	(2.597)
	Two Lags	3.122	-0.010	0.667	0.463
		(4.559)	(1.974)	(1.632)	(2.091)
	Two Leads	1.913	1.988**	2.709***	1.740**
		(1.842)	(0.797)	(0.661)	(0.844)
	One Lead	12.043***	12.059***	18.831***	14.417***
		(2.425)	(1.051)	(0.855)	(1.118)
NASCAR Race[b]	Day of Event	20.627***	21.454***	29.962***	23.912***
		(2.607)	(1.130)	(0.902)	(1.209)
	One Lag	0.408	-0.827	0.666	-0.879
		(2.539)	(1.100)	(0.894)	(1.171)
	Two Lags	-0.328	-0.758	-1.209*	-0.931
		(2.045)	(0.885)	(0.735)	(0.937)
	Two Leads	-1.599	-6.552***	-10.940***	-7.685***
		(3.814)	(1.651)	(1.367)	(1.748)
	One Lead	5.140	-5.989***	-2.757*	-3.183
		(4.746)	(2.056)	(1.667)	(2.190)
NASCAR All-star Race	Day of Event	20.434***	12.115***	22.179***	16.967***
		(5.020)	(2.175)	(1.760)	(2.317)
	One Lag	7.712*	0.139	3.904**	2.339
		(4.647)	(2.013)	(1.642)	(2.140)
	Two Lags	0.542	-0.060	0.246	0.371
		(3.484)	(1.508)	(1.252)	(1.596)
	Two Leads	22.992**	30.079***	15.589***	19.959***
		(8.944)	(3.875)	(3.151)	(4.130)
	One Lead	17.818**	22.468***	18.163***	18.888***
		(7.845)	(3.396)	(2.828)	(3.591)
Democrat National Convention[c]	Day of Event	82.500***	62.559***	41.181***	57.343***
		(7.853)	(3.400)	(2.836)	(3.594)
	One Lag	22.348***	19.416***	12.979***	15.426***
		(7.846)	(3.397)	(2.829)	(3.592)
	Two Lags	13.230	10.043***	8.619***	7.295*
		(8.827)	(3.824)	(3.119)	(4.070)
	Two Leads	6.236	0.512	-1.805	1.118
		(8.932)	(3.868)	(3.186)	(4.103)
	One Lead	17.519*	4.235	4.282	5.482

		(8.969)	(3.884)	(3.213)	(4.116)
NRA Convention[c]	Day of Event	22.679***	2.738	-1.239	3.463
		(7.929)	(3.432)	(2.874)	(3.622)
	One Lag	3.426	0.711	-0.760	0.443
		(8.955)	(3.877)	(3.208)	(4.109)
	Two Lags	-2.829	-0.704	2.715	0.582
		(8.998)	(3.897)	(3.207)	(4.134)
	Two Leads	0.828	-0.122	-0.890	-0.523
		(2.295)	(0.994)	(0.825)	(1.051)
	One Lead	-0.036	-0.925	-2.481**	-1.273
		(2.846)	(1.233)	(1.006)	(1.311)
NFL Pre-season Game	Day of Event	-0.236	-1.904	-3.003***	-1.085
		(2.995)	(1.298)	(1.052)	(1.382)
	One Lag	2.346	-0.789	-1.921*	-1.087
		(2.852)	(1.235)	(1.008)	(1.313)
	Two Lags	5.897**	0.882	-0.320	1.256
		(2.306)	(0.998)	(0.829)	(1.056)
	Two Leads	-0.328	-1.126**	-0.825*	-1.177**
		(1.269)	(0.549)	(0.456)	(0.581)
	One Lead	9.086***	0.763	-0.334	2.076***
		(1.591)	(0.689)	(0.563)	(0.732)
NFL Regular Season Game	Day of Event	6.694***	1.399*	-0.141	3.658***
		(1.674)	(0.725)	(0.589)	(0.772)
	One Lag	0.953	1.072	0.476	0.951
		(1.581)	(0.685)	(0.559)	(0.728)
	Two Lags	0.605	0.451	0.405	0.315
		(1.243)	(0.538)	(0.447)	(0.569)
	Two Leads	4.219	-1.048	-2.597	1.795
		(10.137)	(4.389)	(3.635)	(4.646)
	One Lead	19.072	-4.194	-7.359*	1.225
		(12.479)	(5.406)	(4.389)	(5.755)
NFL Post Season Game	Day of Event	30.950**	0.272	-6.461	5.604
		(13.111)	(5.680)	(4.582)	(6.059)
	One Lag	7.160	0.902	-4.201	6.684
		(12.469)	(5.401)	(4.386)	(5.750)
	Two Lags	-4.693	1.848	0.653	2.296
		(10.122)	(4.383)	(3.630)	(4.639)
	Two Leads	2.053	1.909	-0.354	2.140
		(3.630)	(1.572)	(1.303)	(1.663)
	One Lead	36.613***	9.965***	1.046	14.666***
		(4.480)	(1.941)	(1.578)	(2.065)
College Bowl Game	Day of Event	50.157***	12.119***	3.174*	18.222***
		(4.739)	(2.053)	(1.658)	(2.190)
	One Lag	5.283	5.422***	2.664*	4.415**
		(4.475)	(1.939)	(1.574)	(2.065)
	Two Lags	-6.667*	-0.846	-1.573	-2.103
		(3.633)	(1.573)	(1.300)	(1.668)
	Two Leads	5.722	-1.606	-1.750	-1.431

		(5.104)	(2.210)	(1.830)	(2.339)
	One Lead	39.837***	-2.243	-5.449**	3.826
		(6.266)	(2.714)	(2.205)	(2.889)
ACC Championship Game	Day of Event	52.413***	2.595	-3.710	6.760**
		(6.630)	(2.872)	(2.319)	(3.063)
	One Lag	0.700	-1.560	-3.070	-4.421
		(6.287)	(2.723)	(2.213)	(2.899)
	Two Lags	-2.085	0.718	0.698	0.057
		(5.093)	(2.205)	(1.828)	(2.334)
	Two Leads	-2.540	2.551	1.568	2.344
		(10.456)	(4.528)	(3.738)	(4.801)
	One Lead	5.494	1.524	-0.213	4.361
		(12.354)	(5.354)	(4.284)	(5.737)
SOCON Basketball Tournament[c]	Day of Event	9.921	0.168	0.032	2.665
		(11.895)	(5.162)	(3.914)	(5.620)
	One Lag	5.610	0.099	2.003	1.771
		(11.980)	(5.193)	(4.143)	(5.569)
	Two Lags	2.539	-1.334	2.565	0.801
		(10.003)	(4.332)	(3.573)	(4.595)
	Two Leads	3.132	-0.721	-0.698	-0.236
		(9.969)	(4.317)	(3.562)	(4.578)
	One Lead	10.818	-0.712	1.982	0.854
		(11.933)	(5.172)	(4.132)	(5.544)
ACC Basketball Tournament[c]	Day of Event	31.015***	6.007	2.561	7.251
		(11.819)	(5.129)	(3.898)	(5.579)
	One Lag	34.882***	8.275	3.688	12.182**
		(11.934)	(5.172)	(4.132)	(5.544)
	Two Lags	16.178	3.944	2.536	5.263
		(9.969)	(4.317)	(3.562)	(4.578)
	Two Leads	18.539***	5.235***	0.953	5.587***
		(3.337)	(1.445)	(1.194)	(1.533)
	One Lead	34.867***	15.136***	6.357***	13.935***
		(3.980)	(1.725)	(1.376)	(1.851)
CIAA Basketball Tournament[c]	Day of Event	47.989***	23.772***	9.203***	20.631***
		(3.850)	(1.671)	(1.250)	(1.829)
	One Lag	-20.511***	-9.520***	-3.968***	-9.974***
		(3.988)	(1.729)	(1.380)	(1.855)
	Two Lags	-13.964***	-4.998***	-1.956	-5.180***
		(3.385)	(1.466)	(1.211)	(1.554)
	Two Leads	2.554	0.211	0.164	0.439
		(6.171)	(2.672)	(2.209)	(2.830)
	One Lead	6.899	4.005	1.234	2.999
		(7.537)	(3.265)	(2.634)	(3.485)
NCAA Basketball Tournament[c]	Day of Event	10.959	6.143*	-0.973	4.570
		(7.561)	(3.275)	(2.656)	(3.492)
	One Lag	2.933	1.613	-1.150	1.331
		(7.540)	(3.267)	(2.635)	(3.486)

	Two Lags	-4.718	-1.006	0.006	-1.104
		(6.175)	(2.674)	(2.211)	(2.832)
Marathon	Two Leads	-2.803	-0.598	-0.430	-0.677
		(3.258)	(1.411)	(1.168)	(1.493)
	One Lead	-5.238	-3.724**	-2.522*	-2.773
		(4.060)	(1.759)	(1.429)	(1.872)
	Day of Event	-3.384	-3.134*	-1.594	-2.299
		(4.291)	(1.859)	(1.501)	(1.982)
	One Lag	-3.937	-1.569	-1.270	-2.676
		(4.089)	(1.771)	(1.439)	(1.885)
	Two Lags	2.754	1.524	1.555	1.082
		(3.314)	(1.435)	(1.189)	(1.518)
PGA Tournament[c]	Two Leads	1.043	2.323*	1.666*	2.530*
		(2.813)	(1.219)	(0.998)	(1.295)
	One Lead	2.850	1.125	-0.222	0.723
		(2.508)	(1.086)	(0.904)	(1.148)
	Day of Event	-3.268	0.290	0.269	-0.883
		(2.523)	(1.092)	(0.910)	(1.155)
	One Lag	0.759	0.085	0.389	0.082
		(2.512)	(1.087)	(0.906)	(1.150)
	Two Lags	-0.134	0.774	1.397	1.157
		(2.826)	(1.224)	(1.003)	(1.300)
NBA Regular Season Game	Two Leads	0.139	-0.020	-0.153	-0.218
		(0.720)	(0.312)	(0.256)	(0.331)
	One Lead	-0.036	-0.802*	-0.648*	-0.845*
		(1.005)	(0.436)	(0.346)	(0.468)
	Day of Event	-1.609	-1.577***	-1.208***	-1.450***
		(1.083)	(0.470)	(0.368)	(0.506)
	One Lag	-1.429	-0.988**	-0.768**	-1.070**
		(1.007)	(0.436)	(0.346)	(0.468)
	Two Lags	-0.238	-0.040	0.047	-0.147
		(0.722)	(0.313)	(0.256)	(0.332)
NBA Post Season Game	Two Leads	-1.409	-0.902	-3.380	-1.758
		(8.716)	(3.774)	(3.119)	(3.998)
	One Lead	-4.818	-1.863	-4.389	-3.529
		(10.637)	(4.609)	(3.715)	(4.919)
	Day of Event	-7.190	-1.293	-0.147	-2.658
		(10.667)	(4.621)	(3.746)	(4.927)
	One Lag	4.971	2.306	2.737	2.176
		(10.637)	(4.609)	(3.715)	(4.919)
	Two Lags	6.777	2.734	1.691	2.953
		(8.716)	(3.774)	(3.119)	(3.998)
Snow Event	Two Leads	6.173**	2.131	0.185	2.115
		(2.998)	(1.298)	(1.074)	(1.374)
	One Lead	9.488***	2.617*	-0.488	1.970
		(3.434)	(1.487)	(1.208)	(1.584)
	Day of Event	3.898	2.988*	-0.483	1.329
		(3.589)	(1.555)	(1.253)	(1.660)

	One Lag	3.841	-0.163	-0.056	0.224
		(3.541)	(1.534)	(1.247)	(1.633)
	Two Lags	-0.078	-0.703	-0.517	-0.837
		(3.136)	(1.358)	(1.123)	(1.439)
Real Gasoline Price		-2.193	-1.928*	0.463	-1.338
		(2.472)	(1.078)	(0.705)	(1.255)
Unemployment Rate		-7.159***	-3.502***	-0.135	-3.184***
		(1.749)	(0.762)	(0.513)	(0.874)
Constant		161.214***	92.389***	68.265***	92.985***
		(11.697)	(5.100)	(3.363)	(5.914)
R-squared		0.591	0.685	0.618	0.649

Notes: 3,617 observations used in each specification. a Includes grand opening and annual induction ceremony. b Includes Sprint Cup, Nationwide, and Camping World Truck Series events. c Multi-day event. Dependent variable in levels. Sample period from January 1, 2005 through November 30, 2014. Day of week, month of year, and year fixed effects included but not reported for brevity. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Net Impact of Events on Real Daily Hotel Total Revenue ($ millions)

VARIABLES		(1) Center City	(2) Charlotte Metro	(3) Charlotte Suburbs	(4) Charlotte MSA
	Two Leads	0.027	0.016	-0.008	0.037
		(0.035)	(0.050)	(0.035)	(0.108)
	One Lead	0.025	0.084	0.016	0.129
		(0.043)	(0.062)	(0.042)	(0.133)
NASCAR Hall of Fame[a]	Day of Event	0.040	0.100	0.021	0.163
		(0.044)	(0.064)	(0.044)	(0.138)
	One Lag	-0.012	0.038	-0.001	0.025
		(0.042)	(0.061)	(0.041)	(0.130)
	Two Lags	0.006	0.010	0.010	0.025
		(0.034)	(0.050)	(0.035)	(0.106)
	Two Leads	-0.001	0.049**	0.041***	0.084*
		(0.014)	(0.020)	(0.014)	(0.043)
	One Lead	0.075***	0.247***	0.227***	0.541***
		(0.018)	(0.026)	(0.018)	(0.056)
NASCAR Race[b]	Day of Event	0.128***	0.494***	0.463***	1.075***
		(0.019)	(0.028)	(0.019)	(0.060)
	One Lag	-0.063***	-0.084***	-0.058***	-0.212***
		(0.019)	(0.027)	(0.019)	(0.059)
	Two Lags	-0.029*	-0.063***	-0.053***	-0.147***
		(0.015)	(0.022)	(0.016)	(0.048)
	Two Leads	-0.039	-0.147***	-0.151***	-0.337***
		(0.029)	(0.042)	(0.029)	(0.089)
	One Lead	-0.002	-0.146***	-0.097***	-0.245**
		(0.035)	(0.051)	(0.035)	(0.110)
NASCAR All-star Race	Day of Event	0.146***	0.347***	0.409***	0.897***
		(0.037)	(0.054)	(0.037)	(0.116)
	One Lag	0.015	0.000	0.044	0.050
		(0.035)	(0.050)	(0.035)	(0.108)
	Two Lags	0.016	-0.004	0.003	0.007
		(0.026)	(0.038)	(0.027)	(0.081)
	Two Leads	0.045	0.412***	0.227***	0.657***
		(0.067)	(0.096)	(0.066)	(0.207)
	One Lead	0.096	0.499***	0.315***	0.897***
		(0.059)	(0.086)	(0.061)	(0.184)
Democrat National Convention[c]	Day of Event	0.593***	1.417***	0.806***	2.812***
		(0.059)	(0.086)	(0.061)	(0.184)
	One Lag	0.016	0.173**	0.153**	0.345*
		(0.059)	(0.086)	(0.061)	(0.184)
	Two Lags	-0.031	0.074	0.029	0.068
		(0.066)	(0.095)	(0.066)	(0.205)
	Two Leads	0.061	0.056	-0.049	0.072
		(0.067)	(0.097)	(0.068)	(0.208)
	One Lead	0.135**	0.265***	0.121*	0.520**

		(0.067)	(0.098)	(0.069)	(0.209)
NRA Convention[c]	Day of Event	0.086	0.115	0.059	0.260
		(0.060)	(0.087)	(0.062)	(0.186)
	One Lag	0.001	0.022	-0.019	0.005
		(0.067)	(0.098)	(0.069)	(0.209)
	Two Lags	-0.011	0.002	0.001	-0.013
		(0.067)	(0.098)	(0.068)	(0.210)
	Two Leads	-0.014	-0.007	-0.019	-0.040
		(0.017)	(0.025)	(0.018)	(0.054)
	One Lead	-0.010	-0.043	-0.053**	-0.106
		(0.021)	(0.031)	(0.021)	(0.066)
NFL Pre-season Game	Day of Event	0.042*	-0.034	-0.059***	-0.052
		(0.022)	(0.032)	(0.022)	(0.069)
	One Lag	-0.018	-0.040	-0.046**	-0.105
		(0.021)	(0.031)	(0.021)	(0.066)
	Two Lags	0.013	-0.006	-0.008	-0.001
		(0.017)	(0.025)	(0.018)	(0.054)
	Two Leads	-0.012	-0.023	-0.006	-0.042
		(0.010)	(0.014)	(0.010)	(0.030)
	One Lead	0.085***	0.052***	0.016	0.151***
		(0.012)	(0.017)	(0.012)	(0.037)
NFL Regular Season Game	Day of Event	0.101***	0.056***	0.008	0.163***
		(0.012)	(0.018)	(0.012)	(0.039)
	One Lag	0.009	0.015	0.012	0.034
		(0.012)	(0.017)	(0.012)	(0.037)
	Two Lags	0.002	0.010	0.010	0.019
		(0.009)	(0.014)	(0.010)	(0.029)
	Two Leads	0.097	-0.060	-0.038	-0.005
		(0.076)	(0.111)	(0.078)	(0.237)
	One Lead	0.152	-0.075	-0.132	-0.063
		(0.093)	(0.135)	(0.092)	(0.289)
NFL Post Season Game	Day of Event	0.251***	0.130	-0.130	0.241
		(0.097)	(0.141)	(0.095)	(0.303)
	One Lag	0.209**	0.030	0.006	0.232
		(0.093)	(0.134)	(0.092)	(0.289)
	Two Lags	0.099	0.054	0.038	0.183
		(0.076)	(0.111)	(0.077)	(0.236)
	Two Leads	0.037	0.034	0.017	0.112
		(0.027)	(0.040)	(0.028)	(0.085)
	One Lead	0.256***	0.213***	0.011	0.511***
		(0.033)	(0.048)	(0.033)	(0.104)
College Bowl Game	Day of Event	0.309***	0.260***	0.031	0.629***
		(0.035)	(0.051)	(0.035)	(0.109)
	One Lag	0.044	0.132***	0.060*	0.270***
		(0.033)	(0.048)	(0.033)	(0.104)
	Two Lags	-0.027	0.011	-0.013	-0.006
		(0.027)	(0.040)	(0.028)	(0.085)
	Two Leads	-0.015	-0.035	-0.028	-0.098

		(0.038)	(0.056)	(0.039)	(0.119)
	One Lead	0.161***	-0.048	-0.109**	-0.023
		(0.047)	(0.068)	(0.046)	(0.145)
ACC Championship Game	Day of Event	0.255***	0.212***	-0.016	0.413***
		(0.049)	(0.071)	(0.048)	(0.153)
	One Lag	-0.097**	-0.043	-0.048	-0.223
		(0.047)	(0.068)	(0.046)	(0.146)
	Two Lags	0.012	0.039	0.027	0.053
		(0.038)	(0.056)	(0.039)	(0.119)
	Two Leads	0.015	-0.045	-0.006	-0.030
		(0.079)	(0.114)	(0.080)	(0.244)
	One Lead	0.119	-0.011	-0.023	0.093
		(0.091)	(0.132)	(0.089)	(0.284)
SOCON Basketball Tournament[c]	Day of Event	0.088	0.046	-0.029	0.119
		(0.085)	(0.123)	(0.077)	(0.266)
	One Lag	0.036	0.018	0.010	0.073
		(0.088)	(0.128)	(0.086)	(0.275)
	Two Lags	0.005	-0.032	0.006	-0.015
		(0.075)	(0.109)	(0.076)	(0.233)
	Two Leads	0.013	-0.040	-0.005	-0.046
		(0.075)	(0.109)	(0.076)	(0.232)
	One Lead	0.014	-0.003	0.032	0.022
		(0.088)	(0.127)	(0.086)	(0.274)
ACC Basketball Tournament[c]	Day of Event	0.130	0.157	0.073	0.343
		(0.084)	(0.122)	(0.077)	(0.265)
	One Lag	0.271***	0.256**	0.126	0.643**
		(0.088)	(0.127)	(0.086)	(0.274)
	Two Lags	0.112	0.188*	0.090	0.385*
		(0.075)	(0.109)	(0.076)	(0.232)
	Two Leads	0.066***	0.103***	0.034	0.207***
		(0.025)	(0.036)	(0.026)	(0.078)
	One Lead	0.129***	0.299***	0.140***	0.573***
		(0.029)	(0.042)	(0.029)	(0.091)
CIAA Basketball Tournament[c]	Day of Event	0.224***	0.505***	0.249***	0.974***
		(0.027)	(0.039)	(0.024)	(0.086)
	One Lag	-0.157***	-0.228***	-0.095***	-0.490***
		(0.029)	(0.042)	(0.029)	(0.091)
	Two Lags	-0.076***	-0.121***	-0.035	-0.239***
		(0.025)	(0.037)	(0.026)	(0.079)
	Two Leads	0.006	0.026	-0.002	0.029
		(0.046)	(0.067)	(0.047)	(0.144)
	One Lead	0.022	0.109	0.040	0.170
		(0.056)	(0.081)	(0.055)	(0.174)
NCAA Basketball Tournament[c]	Day of Event	0.097*	0.160**	0.041	0.297*
		(0.056)	(0.081)	(0.056)	(0.175)
	One Lag	0.027	-0.004	0.010	0.033
		(0.056)	(0.081)	(0.055)	(0.174)

	Two Lags	-0.037	-0.062	-0.004	-0.102
		(0.046)	(0.067)	(0.047)	(0.144)
	Two Leads	0.005	-0.035	-0.027	-0.080
		(0.025)	(0.036)	(0.025)	(0.076)
	One Lead	0.026	-0.089**	-0.061**	-0.154
		(0.030)	(0.044)	(0.030)	(0.094)
Marathon	Day of Event	0.009	-0.081*	-0.060*	-0.162
		(0.032)	(0.046)	(0.031)	(0.099)
	One Lag	-0.042	-0.044	-0.026	-0.138
		(0.030)	(0.044)	(0.030)	(0.095)
	Two Lags	0.016	0.060*	0.040	0.100
		(0.025)	(0.036)	(0.025)	(0.077)
	Two Leads	0.041*	0.019	0.006	0.066
		(0.021)	(0.030)	(0.021)	(0.065)
	One Lead	0.010	0.028	0.012	0.050
		(0.019)	(0.027)	(0.019)	(0.059)
PGA Tournament[c]	Day of Event	-0.015	0.037	0.033*	0.055
		(0.019)	(0.028)	(0.020)	(0.059)
	One Lag	-0.014	-0.002	0.008	-0.009
		(0.019)	(0.028)	(0.019)	(0.059)
	Two Lags	0.021	0.016	0.029	0.065
		(0.021)	(0.031)	(0.021)	(0.066)
	Two Leads	-0.003	0.001	0.004	0.000
		(0.005)	(0.008)	(0.005)	(0.017)
	One Lead	-0.005	-0.016	-0.004	-0.029
		(0.007)	(0.011)	(0.007)	(0.023)
NBA Regular Season Game	Day of Event	-0.011	-0.041***	-0.028***	-0.086***
		(0.008)	(0.011)	(0.007)	(0.025)
	One Lag	-0.011	-0.028***	-0.013*	-0.056**
		(0.007)	(0.011)	(0.007)	(0.023)
	Two Lags	-0.002	0.003	0.009*	0.009
		(0.005)	(0.008)	(0.005)	(0.017)
	Two Leads	-0.023	-0.047	-0.075	-0.139
		(0.066)	(0.095)	(0.066)	(0.203)
	One Lead	-0.097	-0.129	-0.158**	-0.375
		(0.079)	(0.114)	(0.077)	(0.245)
NBA Post Season Game	Day of Event	-0.046	-0.023	0.013	-0.049
		(0.079)	(0.115)	(0.079)	(0.247)
	One Lag	0.028	0.075	0.108	0.218
		(0.079)	(0.114)	(0.077)	(0.245)
	Two Lags	0.030	0.050	0.023	0.106
		(0.066)	(0.095)	(0.066)	(0.203)
	Two Leads	0.031	0.058*	0.007	0.097
		(0.023)	(0.033)	(0.023)	(0.070)
	One Lead	0.014	0.065*	-0.020	0.058
		(0.026)	(0.037)	(0.025)	(0.079)
Snow Event	Day of Event	0.025	0.132***	-0.005	0.152*
		(0.027)	(0.038)	(0.026)	(0.083)

	One Lag	0.018	0.054	-0.004	0.068
		(0.026)	(0.038)	(0.026)	(0.082)
	Two Lags	-0.022	-0.009	-0.004	-0.034
		(0.024)	(0.034)	(0.024)	(0.073)
Real Gasoline Price		0.007	0.001	0.020	0.032
		(0.016)	(0.023)	(0.013)	(0.051)
Unemployment Rate		-0.038***	-0.073***	-0.027***	-0.144***
		(0.012)	(0.017)	(0.009)	(0.037)
Constant		0.348***	0.899***	0.427***	1.694***
		(0.076)	(0.109)	(0.061)	(0.243)
R-squared		0.603	0.680	0.747	0.717

Notes: 3,617 observations used in each specification. a Includes grand opening and annual induction ceremony. b Includes Sprint Cup, Nationwide, and Camping World Truck Series events. c Multi-day event. Dependent variable in levels. Sample period from January 1, 2005 through November 30, 2014. Day of week, month of year, and year fixed effects included but not reported for brevity. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.