Estimating the Economic Impact of Major League Baseball's All-Star Game Using High Frequency Tourism Data

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Abstract

Despite claims, primarily from Republican lawmakers, that the removal of the 2021 Major League Baseball All-Star Game has cost local businesses in the Atlanta area $100 million in damages, an examination of hotel occupancy during the 2014 All-Star Game in Minneapolis and the 2019 All-Star Game in Cleveland suggests that these events generated at most 10,000 additional room nights and $4.5 million in additional hotel revenues for the host cities. These figures suggest that the All-Star Game generates a total direct marginal increase in tourism spending of only $3.9 to $9.4 million. Claiming that Georgia has lost $100 million from the removal of the game is pure fiction with no basis in economic data.

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Introduction

In November 2013 Major League Baseball's (MLB) Atlanta Braves made the decision to leave Turner Field in downtown Atlanta/Fulton County, which at the time was only 17-years old. Truist Park (formerly SunTrust Park), located approximately 13 miles to the northwest, opened in 2017 at a cost of $622 million including roughly $328 million of taxpayer subsidies. In May 2019 Major League Baseball, which likes to feature new stadiums for its marquee events, awarded the 2021 MLB All-Star Game to Truist Park.

In 2020, Georgia, which had been a reliably Republican state for many years, went for President Biden in the presidential election and also elected two new Democratic US senators, effectively giving Democrats control of the US Senate. In response, the Republican-controlled state legislature of Georgia, like many other states under Republican control, passed a new voting bill ostensibly designed to combat (non-existent) voter fraud and create uniform voting standards across the state but in practice was put in place to suppress Democratic and particularly African American voter turnout. In response to nationwide criticism of Georgia's new voter law and concerns expressed by the MLB Players Association, on April 2, 2021, Major League Baseball made the decision to move the All-Star Game from Atlanta to Denver.

Officials in Cobb County and the rest of Georgia decried MLB's move and quickly echoed Cobb Travel & Tourism President and CEO Holly Quinn who stated that the "'estimated lost economic impact' from the relocation is more than $100 million" for businesses in Cobb County (CNN, 2021). This estimate was then widely reported in the local and national media and was used as a basis for damages in a $1.1 billion lawsuit filed against MLB. The goal of this paper is to examine the validity of the $100 million claim. Our examination of hotel occupancy

during the 2014 All-Game in Minneapolis and the 2019 All-Star Game in Cleveland suggests that the events generated at most 10,000 additional room nights and $4.5 million in additional hotel revenues. These figures suggest a total direct economic loss of $3.9 to $9.4 million in lost tourist spending implying Cobb County's claim is wildly exaggerated.

Lofty economic impact claims for the All-Star Game (and other so-called "mega-events") are nothing new. Baseball-Almanac.com (2021) reports economic impact claims (of rather dubious provenance) for All-Star Games dating back to 1996 ranging from $37.6 million to $191.5 million, and even Colorado's governor announced that the state would receive a $190 million windfall from the relocation of the game to Denver. But no claim has ever received such widespread attention as Atlanta's $100 million figure as it has become a weapon in a political war waged by conservatives railing against a "woke MLB" run amok.

Academic economists have long criticized the economic impact claims made by supporters of major sporting events suggesting that industry sponsored reports tend to exaggerate the true economic impact of sporting events for at least three main reasons. First, the "substitution effect" occurs when local residents spend money at an event rather than elsewhere in the local economy. Even at an event like the All-Star Game that attracts a national audience, most of the fans will be local people from Denver or Atlanta who are spending their money at the game rather than elsewhere in the local economy. That's not new economic impact being generated but is instead just shifting around where in the local economy activity is happening.

A second source of upward bias is "crowding out." This occurs when the congestion associated with a sporting event crowds out other people who might be normally in the city. Under normal circumstances, most popular tourist destinations such as Atlanta are pretty full on

a typical July weekend. If All-Star Game fans simply displace regular tourists to Georgia or Cobb County, that is not a net gain for the region.

A third source of bias are "leakages." Leakages occur when money that is spent in the city doesn't actually stick in the city both reducing the direct economic impact on the city as well as the macroeconomic multiplier effects. For example, money spent on tickets to the game does not benefit Atlanta but instead directly winds up in MLB's headquarters in New York City. Similarly, mega-events often drive up hotel occupancy rates and room prices, but these hotels rarely increase wages of their employees in response to this higher demand leading to windfall profits accruing to stockholders across the world rather than to local workers.

Numerous studies have gone back and looked at the economic performance of cities that have hosted sports mega-events to see whether ex ante predictions have matched ex post reality including at least two that have examined MLB's All-Star Game. Baade and Matheson (2001) examined annual employment growth in 23 MLB All-Star Game hosts between 1973-1997 finding that on average cities hosting the game experienced employment growth of -0.38% (or 8,112 jobs) below what would have been expected in a normal year although this decline in employment was not statistically significant. A second model estimated by Baade and Matheson (2001) examined quarterly taxable sales for three cities in California that hosted All-Star Games in Oakland (1987), Anaheim (1989), and San Diego (1992). In each case, taxable sales were lower, by an average of $29.9 million, than would normally have been expected, but again this decline in taxable sales was not statistically significant. Coates and Depken (2011) examine monthly sales tax collections during All-Star Games in Houston (2004) and Arlington, Texas (1995) finding tax receipts were between $184,711 and $188,225 lower on average than would

normally have been expected, but yet again this result was not statistically significantly different than zero.

One criticism that can be made of many studies of mega-events is that they are not statistically powerful enough to capture the effect of what are relatively small economic events. Even if Cobb County were to experience a $100 million boost from the All-Star Game, this would still represent less than 0.03% of the annual GDP of the Atlanta metropolitan area. In order to increase the chances of finding the elusive "needle in a haystack" that is the economic impact of a sporting event, economists have recently moved to analyzing very high frequency daily data such as tourist arrivals (Baumann, Matheson and Muroi, 2009) or hotel stays (Baumann, Matheson, and Stephenson, 2021). An event that fails to show up in annual or quarterly data may appear significant in daily data. The use of tourism data also addresses the substitution effect as it measures the extent to which an event brings in new people and spending from outside the region rather than potentially incorrectly measuring spending by local residents.

Data

We use daily hotel data from Smith Travel Research, Inc., a vendor of hotel industry data for the U.S. and many other countries. The data cover the time period from January 1, 2012 through December 31, 2019. The two locations examined are Target Field in Minneapolis, which hosted the 2014 All-Star Game, and Progressive Park in Cleveland, which hosted the 2019 edition, and the data include all hotels within 10 miles of each ballpark which includes all of the major hotels in the downtown area of each city. Table 3 provides summary statistics for the number of hotel rooms occupied, the average daily rate of the hotel rooms rented, and the total

revenue generated by hotels from room rentals. Estimating models with three different dependent variables provides different insights into the economic impact of events in the city. Estimates of the number of additional rooms occupied provide an estimate of the number of overnight visitors due to the All-Star Game. Estimates of price effects associated with events address issues related to demand that are not reflected in equilibrium quantities. It should be noted that large room price increases suggest greater leakages and smaller multiplier effects. This is because the increased prices generally represent capital returns to shareholders that may reside outside of the host city's metropolitan area as opposed to returns to labor for workers living in and around Minneapolis and Cleveland. Finally, since lodging expenses comprise a large portion of visitor spending, estimating the marginal change in hotel revenues is an important step towards determining the total economic impact as a result of a city hosting a sporting event. Of course, hotel revenues do not include spending on items such as restaurants, retail sales, or local ground transportation which are also part of a typical visitor's spending, as well as the cost of the tickets. Nevertheless, hotel revenues represent the single largest local component of visitor spending, and the information on the number of rooms rented provides an estimate of the number of visitors due to the event. We merge these hotel data with (1) the game schedules of the Minnesota Twins and Cleveland Indians of MLB as well as the dates of the All Star Games.

Table 1: Summary Statistics for Hotels within Ten Miles

Cleveland, 2012-2019

	Mean	**St. Deviation**	**Min.**	**Max.**

Rooms Occupied	6,183	1,696	1,550	10,247
Average daily room rate	$117.88	$17.69	$75.40	$312.35
Total revenue	$751,299	$304,476	$125,684	$3,035,925

Minneapolis & St. Paul, 2012-2019

	Mean	**St. Deviation**	**Min.**	**Max.**
Rooms Occupied	17,510	4,250	4,691	28,356
Average daily room rate	$120.74	$21.78	$73.41	$400.68
Total revenue	$2,183,096	$890,188	$360,113	$10,715,770

Table 1 provides summary statistics for three outcomes for hotels within ten miles of the MLB stadium. Each mean represents a daily average. It is clear from the summary statistics that the hotel industry is larger in Minneapolis/St. Paul, where the average daily total revenue is roughly three times as large compared to Cleveland.

Estimation – Least Squares

We assess the impact of baseball events on three outcomes on the hotel industry: number of hotel rooms occupied, the average daily rate of the hotel rooms rented, and the total revenue generated by hotels from room rentals. The explanatory variables include separate binary variables for regular season MLB games, postseason MLB games, and the All Star Game. We also include a separate control for hosting a World Series game, which applies to Cleveland in 2016. We also control for the calendar patterns of hotel demand using a time trend and binary variables for each day of the week, month of the year, and year in the sample. We begin with least squares estimations for each of the hotel outcome variables. There are six estimations since each of three hotel outcome variables are measured for hotels within ten miles of the MLB stadium for two different cities. Finally, all estimations use robust standard errors.

Tables 2 and 3 present these results for hotels in Cleveland and Minneapolis, respectively. Two of the estimations use a log-linear approach and the other is linear. These specification decisions are made by comparing *r*-squared results between the two models, and for brevity only the better fit of each are presented below. We also suppress the estimation results for the time trend and dummy variables for each year, month, and day of the week for brevity. All results are available upon request.

Table 3: Least Squares Estimations, Cleveland Hotels within Ten Miles of Stadium

	Rooms	Ln (Daily Rate)	Ln (Revenue)
Regular Season MLB	**390.0**	**0.022**	**0.074**

game	($p < 0.001$)	($p < 0.001$)	($p < 0.001$)
Post Season MLB game	**1,361** ($p < 0.001$)	**0.096** ($p < 0.001$)	**0.264** ($p < 0.001$)
World Series game	**1,397** ($p < 0.001$)	**0.273** ($p < 0.001$)	**0.454** ($p < 0.001$)
World Series game, one day prior	77.35 ($p = 0.925$)	**0.162** ($p < 0.001$)	0.170 ($p = 0.180$)
World Series game, two days prior	**-284.0** ($p = 0.033$)	0.050 ($p = 0.253$)	0.034 ($p = 0.610$)
All Star Game	**1,813** ($p < 0.001$)	**0.496** ($p < 0.001$)	**0.674** ($p < 0.001$)
All Star Game, one day prior	**2,660** ($p < 0.001$)	**0.528** ($p < 0.001$)	**0.837** ($p < 0.001$)
All Star Game, two days prior	**2,690** ($p < 0.001$)	**0.542** ($p < 0.001$)	**0.977** ($p < 0.001$)
All Star Game, three days prior	-130.0 ($p = 0.282$)	**0.294** ($p < 0.001$)	**0.246** ($p < 0.001$)
All Star Game, four days prior	-149.0 ($p = 0.216$)	**0.199** ($p < 0.001$)	**0.172** ($p < 0.001$)
r-squared	0.6564	0.6100	0.6284

Bold estimates indicate statistical significance at 0.05 or less. Estimations also include a time trend and dummy variables for each year, month, and day of the week.

Table 3: Least Squares Estimations, Minneapolis Hotels within Ten Miles

	Rooms	Ln (Daily Rate)	Ln (Revenue)
Regular Season MLB game	**600.4** ($p < 0.001$)	0.066 ($p = 0.165$)	**0.040** ($p = 0.001$)
Post Season MLB game	**1,639** ($p < 0.001$)	-0.010 ($p = 0.308$)	**0.071** ($p = 0.004$)
All Star Game	**2,671**	**0.325**	**0.473**

	$(p < 0.001)$	$(p < 0.001)$	$(p < 0.001)$
All Star Game, one day prior	**4,042** $(p < 0.001)$	**0.343** $(p < 0.001)$	**0.577** $(p < 0.001)$
All Star Game, two days prior	**3,217** $(p < 0.001)$	**0.368** $(p < 0.001)$	**0.627** $(p < 0.001)$
All Star Game, three days prior	44.15 $(p = 0.875)$	**0.142** $(p < 0.001)$	**0.153** $(p < 0.001)$
All Star Game, four days prior	-230.0 $(p = 0.409)$	**0.103** $(p < 0.001)$	**0.103** $(p < 0.001)$
r-squared	0.6378	0.6114	0.5894

Bold estimates indicate statistical significance at 0.05 or less. Estimations also include a time trend and dummy variables for each year, month, and day of the week.

Our main conclusion from Tables 2 and 3 is that the 2014 and 2019 All Star Games had a positive impact on hotel revenues near the stadium. Through trial-and-error testing we find positive marginal revenue effects that begin four days prior to the event. In total, we estimate that the marginal effect of All Star Game on hotel revenues is roughly $2.18 million for hotels in Cleveland and $4.22 million for hotels in Minneapolis. The estimations for average daily rate and number of rooms show that this increase in revenues is due to increases in both price and quantity of hotel rooms. Alternative models, which are not shown here for brevity find similar results for an ARMA model and for models examining hotels only within 2 miles of each stadium.

Table 4: Cumulative Marginal Effects of All Star Game on Hotel Revenues and Rooms

	Hotel revenues	Rooms sold
Cleveland hotels within ten miles of stadium	$2.183 million	7,163
Minneapolis-St. Paul hotels within ten miles	$4.220 million	9,930

Results and Conclusions

Our analysis shows that the MLB All-Star Games in both Cleveland and Minneapolis had statistically significant impacts on hotel occupancy and total hotel revenues on the day of the event and up to 4 days previous. So what can be said about the total economic impact generated by the event in these two cities based on these results.

Surveys of visitor spending by travel companies such as AAA suggest that roughly 45% of daily costs for tourists, aside from transportation to and from the final destination, is spent on accommodations. Other surveys suggest that people spend $121/day while traveling on local expenditures excluding housing. Table 5 provides rough estimates of total visitor impact using each of these methodologies resulting in total economic impacts of the All-Star Game ranging from $3.92 to $9.38 million. Even if a multiplier of 2 were applied to be adding to the direct spending impact, the total economic impact is at most ⅓ of the impact claimed by Cobb County.

Table 5: Estimates of All-Star Game Total Visitor Spending

	Hotel revenue method	Rooms sold method
Cleveland	$4.85 million	$3.92 million
Minneapolis-St. Paul	$9.38 million	$6.62 million

It is reasonable to include some caveats. This analysis does not include daytrippers, although their contribution is likely to be low since they will only be in the Atlanta area for less than a day and will not be engaging in spending on accommodations, the single highest category of spending for most travelers. In addition, many daytrippers will be from within the state of

Georgia leading to pure substitution effect for the state if not for the MSA. This analysis also misses visitors staying in paid accommodations other than hotels such as VRBO or AirBnB. This is a small but growing category of housing rentals. This analysis also misses people staying with friends or family, but this is also likely to have little net economic impact due to time switching/casual visitor issues. This analysis also does not include indirect or multiplier effects which could serve to perhaps as much as double the losses shown in Table 5.

It should also be noted that leakages are likely to be high due to high ticket prices and elevated hotel room prices. In addition, there is an issue about whether the $100 million increase applies to Cobb County or the entire greater Atlanta metropolitan area.

All in all, based on the experience of Minneapolis and Cleveland, Atlanta will not experience a $100 million loss due to the removal of the 2021 MLB All-Star Game. The loss of visitor spending in Atlanta due to the removal of the All-Star Game is best estimated by a number at most one-tenth of that figure.

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