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Labor Lockouts in the NBA and their Effects on Large and Small Market Team Attendance and Revenue

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Labor lockouts in the NBA and their effects on large and small market team attendance and revenue.

by

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Introduction

Professional sports leagues across the United States are routinely recognized as profitable businesses. These leagues have enjoyed the luxury of brand recognition and a loyal customer base for decades. Unfortunately, along with all the benefits, professional sports leagues have also inherited the problems of a profitable industry. One such problem is labor strikes, which are commonly referred to as lockouts in the world of professional sports.

In the past, the effects of lockouts in the National Football League (NFL), Major League Baseball (MLB), and the National Hockey League (NHL) have been studied to address the question "do lockouts reduce fan support?" The proxy commonly used to examine fan support is attendance. Past research has shown that lockouts across all three major leagues have had similar effects on league attendance, the only difference being the magnitude. These studies have shown that lockouts had negative short-term effects on fan support. Furthermore, Treber and Mulcahy (2016) found evidence that lockouts in the NHL had negative long-term effects on league revenue.

The impact of lockouts in one league: The National Basketball Association (NBA) has not been examined. Thus, the question remains do NBA Lockouts effect fan support. Examining the 1999 and 2012 NBA lockouts, this thesis finds evidence that NBA lockouts effects resemble existing studies on lockouts in other major league sports.

The NBA, when compared to the MLB and NFL, is new to lockouts, but other major sports leagues have a long history with them. The NFL, which is viewed as the most valuable sports league in America, was also the first professional sports league to experience a lockout in 1968. According to https://www.football-reference.com/ [1]the1968 lockout, while short, started a

[1] http://www.espn.com/nfl/topics/_/page/nfl-labor-negotiations

trend that haunted professional sports leagues and their respective fans for decades. The 1968 NFL lockout was followed by two more lockouts in 1970 and 1974 but all three would reach resolution early on, and thus had minimal effects on fans of the league. It wasn't until the 1982 NFL lockout where the effects of the lockout would directly affect the fans of the league. Prior NFL lockouts would reach a resolution before the official start of the season. The 1982 NFL lockout, on the other hand, didn't reach a resolution until the midway point of the 1982 NFL season. This result would shorten the season to 9 games per team. Becoming the first NFL lockout where the fans lost the opportunity to watch a full season of games. The 1982 NFL lockout wasn't the last one either. The 1982 NFL lockout was followed by four more NFL lockouts in 1987, 2001, 2011, and 2012. It was evident that fans of the NFL hated lockouts because they had the ability to shorten the season.

The MLB is baseball's - commonly referred to as Americas favorite pass time – professional league. The MLB has a rich history of lockouts. Unlike the NBA and NFL, according to https://www.baseball-reference.com[2]/ the first ever MLB lockout in 1972 would have a direct effect on the fans of the league. The 1972 season had to cancel 86 games because of its lockout. This would be a common trend for MLB lockouts. The 1981 MLB lockout would cancel 713 game and the 1994 MLB lockout out would cancel the entire season a total of 2,430 games plus the MLB world series. Thus, a grand total of 3,229 MLB games have been lost because of MLB lockouts.

This pattern of lockouts plaguing professional sports leagues would soon enter the NBA. The first NBA lockout took place in 1995. Fortunately for the fans, the 1995 NBA lockout would

[2] https://www.sportingnews.com/us/mlb/news/mlb-free-agents-labor-dispute-history-1994-1981-strike-1990-lockout-marvin-miller-mlbpa/lhl6crvxn0ya1xrc5n9m915xf

only last three months and ended prior to the start of the official NBA season. Thus, this lockout had little to no effect on league attendance. Similarly, the 1996 NBA lockout would not affect fans either, the lockout only lasting a couple of hours.

The 1999 NBA lockout would bring a change to the past historical trend of NBA lockouts reaching a resolution prior to the start of the official NBA season. Evidently, the 1999 NBA lockout would cost the league and its fans a total of 982 games. According to https://www.basketball-reference.com/,[3] the 1999 NBA lockout would shorten the season by 32 games per team. This new phenomenon of lockouts having a direct effect on the fans would continue in 2012. The 2012 NBA lockout would also shorten the NBA season by 16 games per team, a grand total of 480 games lost that season. This alarming trend of lockouts costing professional sports leagues games, attendance, and revenue had become a new area of study for past researchers and this thesis.

Literature Review

Research done on the effects of past lockouts seems to lead to similar conclusions. Schmidt and Berri (2002) examined MLB lockouts in 1981 and 1994 found evidence that the lockouts had negative short-term effects on league attendance. Schmidt and Berri (2002) along with Treber and Mulcahy (2016) commonly use the phrase short-term meaning the effects of the lockouts likely dispersing after 2 years. Coates and Harrison (2005) examined the same MLB lockouts in 1981 and 1994 and found a similar short-lived effect on league attendance. Neither was able to find conclusive evidence of the lockouts having effects that last past 2 years.

[3] https://www.theatlantic.com/business/archive/2011/06/the-nba-lockout-heres-what-you-need-to-know/241251/

Schmidt and Berri (2004) subsequently studied lockouts that have occurred in the NFL and NHL. Schmidt and Berri (2004) once again found no evidence of long-term effects on league attendance across all three major league sports. Treber and Mulcahy (2016), on the other hand, when expanding the research done by Schmidt and Berri (2004), found evidence to the contrary.

Originally studies on lockouts were examined to determine if there was a possibility of lockouts hindering fan support, as measured by fan attendance. Treber and Mulcahy (2016) however used revenue as their proxy for fan support. When examining these leagues as a business the financial effects of these lockouts become transparent. Every lockout involves sizable upfront costs for all parties involved. During the duration of lockouts, players lose game-day salary and team owners will forego revenue. But the true cost over time owes to the loss of fan support, which is feared to be permanently altered by lockouts. It is this fear of lookouts altering fan demand that leads to the question, do lockouts fundamentally change fan support? Thus, examining the effect of the lockout on revenue along with attendance should show if lockouts have the potential to change support. Schmidt and Berri (2004) and Coates and Harrison (2005) didn't have the luxury of studying the revenue effects of lockouts because the data was unavailable at the time. Treber and Mulcahy (2016), on the other hand, had revenue data available. Treber and Mulcahy's (2016) examination of the 1994, 2004 and 2013 lockouts on NHL revenues and attendance found evidence of long-term negative effects on league revenue. It remains to be seen if these effects can be observed in other sports leagues, such as the NBA.

Background

1. 1999 Lockout

Before studying the statistical impact of the lockouts, it is important to understand the details and circumstances the led to the lockouts experienced by the NBA. The NBA, as one of the most prominent sports leagues in the Untitled States, had been reaping the benefit of decades of success, but signs of a downturn in the year 1998 were beginning to create concern. Sales of NBA apparel were down, and teams were losing money. Paul D. Staudohar (2014) During his research found that attendance had fallen by 15 percent in certain cites during the 1998 season. There was no clear reason as to why the league was facing this unexpected downturn. Thus, with the leagues experiencing some unfamiliar turmoil both the team owners and players knew there were going to be changes made to the collective bargaining agreement.

The collective bargaining agreement was a legally enforceable contract for a specified period between the management of an organization (team owners) and its employees(players). It sets down and defined conditions of employment (wages, working hours and conditions, benefits, set salary cap, etc.). Both owners and players had found areas in the agreement that they felt needed change. Eventually, when one party doesn't agree with the other the league enters a lockout until a resolution is met. The first factor that leads to the 1999 NBA lockout was the rise in star player salaries. In 1977, the highest paid player in the NBA was Kareem Abdul-Jabbar who earned $2,689,230 when adjusted for inflation. In 1987 when adjusted for inflation Patrick Ewing had earned $6,224,892, over a 200 percent increase compared to Kareem. In 1997, when adjusted for inflation, Michael Jordan had earned $44,735,545; over a 700 percent increase compared to Ewing. This rapid rise in star players salary become a reason for owners to request a change in the collective bargaining agreement. All the players mentioned were signed to teams in

large market cities. Kareem played for the Los Angeles Lakers, Ewing played for the New York Knicks and Michael Jordan played for the Chicago Bulls. Thus, a trend was beginning to form where the large market teams were signing players to massive contracts. The top thirteen highest paid players in the league during the 1998 season made about 19 percent of total revenue available to all 450 players. Twelve of those players played for a large market team. The larger market teams had the benefit of offering a larger contract simply because they were more profitable and able to pay the star players more. It was clear that teams in Los Angles, New York, Chicago, etc. were more profitable than teams in Indiana, Ohio, and Utah, which might threaten the competitive balance of the league.

This trend of large market teams signing most available star players lend to the owners wanting a hard salary cap to be included in the collective bargaining agreement. A hard salary cap meant that each team would be able to use a selected amount of funds to sign all their players. If the hard cap was set to be $60,000,000, the team must use only $60,000,000 to sign all its players. A professional team in the NBA would on average have fifteen men on a roster. Thus, if the Bulls used $30,000,000 to sign Michael Jordan, they only have $30,000,000 left to sign the remaining fourteen players.

From the players' perspective, the owners wanted to use the hard cap to contain and lower player salaries. Players believed if the hard cap entered the collective bargaining agreement, the owners would refuse to offer contracts with high salaries and use the hard cap as the reason. This fear of owners having the powers to offer lower salaries become the first factor that led to the 1999 NBA lockout.

The second factor that led to the 1999 NBA lockout was the split of revenue between players and owners. NBA players' salaries are directly affected by the divide of overall revenue.

The larger the contracts, the larger the split for the players. With these factors along with some others, the league entered a lockout in 1999. In the early days of the lockout, the owners were offering a 50/50 revenue split along with a hard cap. The players, on the other hand, demanded a 60/40 revenue split along with the league keeping a soft cap.

A soft cap meant a team was able to spend money on players' salaries even after exceeding the set amount created by the cap. The punishment for acceding a soft cap meant a team had to pay a tax on the amount over the cap. This soft cap was a barrier for large market teams attempting to sign all available star player but wasn't a large enough deterrent to stop the large market team from signing star players. After both sides were unable to reach an agreement on the new collective bargaining agreement the NBA entered a lockout. The 1999 NBA lockout became the longest lockout in NBA history. The 1999 NBA lockout cost the league and its fans almost 40 percent of the regular season a total of 928 games. After the unexpected cancellation of 928 games, the motivation for reaching a resolution became, for all parties involved, to save the season. With the motivation of not having to cancel a full regular season, the lockout reached a resolution. The owners split of revenue became 53 percent, while the players became 47 percent. The major factor for the players accepting a smaller revenue split was the league not allowing a hard salary cap to enter the collective bargaining agreement.

2. 2012 Lockout

The league at its surface had entered a period of tranquility prior to the 2011 NBA season, but when closely examined similar conditions that led to a lockout in 1999 were present. The year prior to the lockout, NBA teams collectively lost $300 million with 22 out of 30 teams being in the red. This led to the owners once again demanding a hard cap. The owners believed that a hard cap would help small market teams keep star players which in return would help

teams generate revenue. Players once again refused to allow a hard cap to enter the collective bargaining agreement. The players also wanted the collective bargaining agreement to increase the current $5 million average salary up to $7 million at the end of a player's proposed six-year deal. This request along with most teams losing money prevented both sides from reaching an agreement before the start of the 2011-2012 NBA season. Thus, the league entered a lockout. This lockout, while shorter than before, cost the league and its fans about 20 percent of the regular season, a total of 480 regular season games. During the early days of the lockout, the players requested a 57/43 revenue split. The players also didn't want a hard cap to enter the collective bargaining agreement. As the lockout progressed a new variable had entered the equation that wasn't present during the 1999 NBA lockout. This variable is the possibility of the player agreeing to play professional basketball overseas. This new threat of NBA players joining another professional basketball league along with the loss of 480 games became the catalyst that led to a resolution. The new collective bargaining agreement had both sides agree to a 50/50 revenue split and the hard cap was not added to the agreement.

3. Market Size

A common factor present during both lockouts was the owners wanting small market teams to prosper along with the large market teams. These markets experience lockouts and interact with fan bases in different ways than large markets. Thus, unlike previse research, this thesis examines the effects of each lockout on different markets along with the effects on the overall league. www.Bleacherreport.com[4] had already created a market size index that separates the small market team from a large market team. This index used seven factors to determine which side of the spectrum each team would land. The factors are Fan Support (percentage of an arena

[4] https://bleacherreport.com/articles/1333672-big-market-team-nba-power-rankings#slide0

filled per game), Future Market Growth, Team Heritage (franchise history, including years spent in market and playoffs/titles), All-Time Winning Percentage, Fan Cost index, and Market Competition (considering other attractions and pro teams competing for dollars). Table 1 shows the separation of a large market team from small market teams.

Data

Attendance data for this thesis was obtained from three sources. The first two sources were ESPN.com and www.basketball-reference.com[5], These two sources provided attendance data for every professional NBA team from 1990 to 2017. The third source for attendance data was http://www.apbr.org**.** This source provided attendance data for teams that had been retired from the NBA such as the Seattle Supersonics and Vancouver Grizzlies. Revenue data was extracted from Rodney Fort's Sports Business Database.[6] Fort's database had obtained its financial data from the Forbes Annual NBA Team Valuations report. Financial data from 1990-1996 and 1998-2017 were available in Fort's database but 1997 was unavailable. This thesis will use the average of the years 1996 and 1998 for the 1997 NBA season.

Methodology and Results

This thesis will be using a first difference regression model to examine the effects of each lockout. During the examination, two different forms of effects had emerged. The first being a direct effect (the league losing revenue and attendance because stadiums/arenas where closed) and the second an indirect effect (the league losing/gaining revenue and attendance when there are games being played). The analysis will begin with an examination on the aggregate effects of attendance and revenue followed by a per-game analysis on attendance and revenue.

[5] https://www.basketball-reference.com/play-index/tsl_finder.cgi
[6] https://sites.google.com/site/rodswebpages/codes

Aggregate Attendance

The aggregate attendance analysis will begin by graphing the yearly attendance averages of each NBA season from 1990 to 2017. The results are shown in graph 1. Graph 1 does depict a slight increase in attendance, but overall attendance had been steady around 700,000 attendees on average. The graph also shows two colossal drops in attendance in 1999 and 2012, which were both lockout years. Graph 2 shows the regressed first difference of average attendance. As expected, the drop in attendance during the lockout-shortened seasons were neutralized by a corresponding increase in attendance the following season.

There will be three different samples used to measure the effects of the lockout on different market sizes. The sample "Full" includes every professional NBA team, "Large" will include a large market team, and "Small" will include small market teams. The same first difference regression model will be used with every sample. Basic mathematical construction of the model is presented below:

$$D.Attendance = \beta 0 + \beta 1 * Lockout1999 + \beta 2 * Lockout9900 + \beta 3 * Lockout9904 + \beta 4 * Lockout2012 + \beta 5 * Lockout1213 + \beta 6 * Lockout1217 + \epsilon t \quad (1)$$

As equation (1) indicates, Dummy variables Lockout1999 and Lockout2012 are created to measure the initial effects of the lockouts. Lockout9900 and Lockout1213 will capture the bounce back effect from each corresponding lockout. Lockout9904 and Lockout1217 will measure the long-term effect of their corresponding lockouts.

Table 2 present the results of the regression. The figures presented in the table are averaged

yearly totals across each respected sample. Thus, the attendance figures from sample “Full” are averaged yearly totals of both the “Large” sample and “Small” sample. “Large” include 16 NBA and “Small” includes 17 NBA teams.

During analysis, an examination of Lockout1999 shows that the 1999 NBA lockout had similar effects across the board. The 1999 NBA lockout cost the league 271,349 attendees on average. It cost 271,461 attendees when examining large market teams and 274,129 attendees when examining small market teams. Variables Lockout9900 and Lockout9904 are statistically insignificant and are thus uninterpretable. Lockout2012 estimates the initial effects of the 2012 NBA lockout. During the examination, there does seem to be a larger decrease in attendees for large market teams compared to small market teams, but the lockout had lowered attendance across the board. The 2012 NBA lockout had cost the entire league 102,115 attendees, cost large market teams 148,288 attendees and cost small market teams, 125,785 attendees. Unlike the 1999 NBA lockout, the 2012 NBA lockout’s corresponding bounce back variable (Lockout1213) is statistically significant. As is visible in Graph 2, there were 34,777 attendees increase the season following the lockout for the overall league. The bounce back effects for small and large market teams are statistically insignificant. During the examination of the long-term effect of the 2012 NBA lockout, Lockout1217 shows the attendance in the long-term had increased by 36,477 on average when examining the entire league. These effects align with past research done on similar lockouts across different professional sports leagues.

Aggregate Revenue

This thesis will be using the same first difference regression model to measure the effects of the lockouts on team revenue across the entire league and different market sizes. Once again

there will be three separate samples, “Full” includes every professional NBA team, “Large” will include a large market team, and “Small” will include small market teams. The same first difference regression model will be used with every sample. Basic mathematical construction of the model is presented below:

$$D.Ln(Revenues) = \beta 0 + \beta 1 * Lockout1999 + \beta 2 * Lockout9900 + \beta 3 * Lockout9904 + \beta 4 * Lockout2012 + \beta 5 * Lockout1213 + \beta 6 * Lockout1217 + \epsilon t \quad (2)$$

Dummy variables Lockout1999 and Lockout2012 are created to measure the effects of the lockouts. Lockout9900 and Lockout1213 will capture the bounce back effect from each corresponding lockout. Lockout9904 and Lockout1217 will measure the long-term effect of their corresponding lockouts.

Table 3 presents the results of the regression. Lockout1999 which measure the initial effects of the 1999 NBA lockout shows a 58 percent decrease in revenue across the entire NBA. When examining the effects of the 1999 NBA lockout on large market teams there is a 59 percent decrease in revenue and a 56 percent decrease in revenue when examining small market teams. Overall, the 1999 NBA lockout had parallel effects on the league and its different markets.

The 2012 NBA lockout follows a similar trend. Lockout2012 shows a 7 percent decrease in revenue across the entire league, an 8 percent decrease in revenue across small market teams and a 15 percent decrease across large market teams. Examination of the bounce-back season following the 2012 lockout shows a steady increase across the league. This is evident with

lockout1213 having an 8 percent increase in revenue when examining the entire league and a 5 percent increase when examining large market teams. Lockout1213 effect on small market teams are statistically insignificant, thus are uninterpretable. Lockout1217 shows that the 2012 lockout had negative long-term effects. During an examination of the entire NBA, there is a long-term 10 percent decrease in revenue and a similar 10 percent decrease in revenue when examining small market teams. Lockout1217 effects on large market teams are statistically insignificant, thus are uninterpretable. These findings of lockouts having a negative long-term impact on fan support align with the research done on the NHL lockout by Treber and Mulcahy.

Per Game Analysis

Furthering the research done on lockouts in professional sports leagues, this thesis will examine the effects of the lockout on a Per Game scale. This will be done to address the concern that there is a difference between fans losing interest in games and fans not being able to go to games because of cancelation. Thus, a pre-game analysis would eliminate this concern. For this per- game analysis the same first difference regression model will be used to measure the effects of the lockouts on team revenue across the entire league and different market sizes. Once again there will be three separate samples, Full includes every professional NBA team, Large will include a large market team, and Small will include small market teams. The same first difference regression model will be used with every sample. Basic mathematical construction of the model is presented below:

$$D.Ln(Revenues) = \beta 0 + \beta 1 * Lockout1999 + \beta 2 * Lockout9900 + \beta 3 * Lockout9904 + \beta 4 * Lockout2012 + \beta 5 * Lockout1213 + \beta 6 * Lockout1217 + \epsilon t \quad (3)$$

Dummy variables Lockout1999 and Lockout2012 measure the effects of the lockouts. Lockout9900 and Lockout1213 will capture the bounce back effect from each corresponding lockout. Lockout9904 and Lockout1217 will measure the long-term effect of their corresponding lockouts.

Table 5 presents the results of the regression. Results show that the effects of the lockouts on the NBA and its different markets have similar effects when examined on a per-game scale. However, the effects of the pre-game analysis do differ in magnitude from the original aggregate analysis. Lockout1999 shows that the league lost 8 percent of its revenue when the sample includes the entire NBA. Lockout1213 shows that the bounce back effect present in the seasonal analysis is also present in the pre-game analysis. Lockout1213 shows a 2 percent increase in revenue when the sample contained the entire NBA and 5 percent when the sample contained only large market teams. Furthermore, lockout1217 which capture the long-term effects of the 2012 NBA lockout, shows that on a per-game scale the lockout had a negative effect on revenue. There was a 16 percent drop in revenue when the sample includes the entire NBA and a 10 percent drop in revenue when the sample includes only small market teams. These results align with the findings of the original seasonal analysis, which showed that the 2012 NBA lockout lowered revenue by 10 percent across the entire NBA.

Other than magnitude, the area where the per game analysis differs from the seasonal analysis is lockout2012. Lockout2012 captures the initial effect of the 2012 NBA lockout, when examined on a seasonal scale the NBA lost 7 percent of its revenue, but on the per-game scale, Lockout2012 shows an increase of 9 percent. This distinction between lockout effects on a seasonal scale vs a per-game scale can be explained by multiple factors. One factor is an increase

in the cost of attending an NBA game during the 2012 NBA season. The Fan cost index shows that the cost of attending an NBA game had increased on average by 5 percent. Thus, on a per-game scale with the added cost of attending an NBA began to collect an excessive amount of revenue per-game. This excess revenue becomes one of the factors that led to the 9 percent increase in per-game revenue captured by lockout2012.

Analysis

NBA lockouts effects on fan interest do seem to follow similar trends to other lockouts researched in the past. There was a clear upfront cost to all parties involved with the lockout. Team owners lost revenue and players lost game day salaries. On the other hand, the belief that the lockouts had harmed fan interest isn't present during this thesis's examination of the NBA lockouts. The metrics that show NBA lockouts don't harm fan interest are the bounce back variables (Lockout9900 and Lockout1213) in the aggregate attendance and revenue analysis. As shown in tables 2 and 3 the fans returned to the arenas the first chance they got. Lockout1213 the variable that measures the bounce back effect of the NBA lockout captured an increase in attends across the NBA and its different markets. In addition, during the per-game analysis lockout2012 captured a 9 percent increase in per-game revenue. As per the Fan Cost Index, the most professional teams in the NBA had risen the cost of attending a game to make up for the revenue lost during the lockout. Thus, on a per game scale fan were willing to pay a premium to return to NBA games. Showing that fans of the NBA hadn't lost interest in the NBA. Thus, aside from the direct upfront cost of lockouts, fans of the NBA waited and welcomed the possibility of returning to the game they love.

During the examination of the results, the formation of discrepancies between lockout effects on different markets begins to form. The first area of discrepancy between markets is the

magnitude of initial lockout effects on attendance and revenue in 2012. During the 2012 lockout, both markets had their seasons shortened to 66 games, but the 2012 lockout cost large market teams 148,288 attendees and cost small market teams, 125,785 attendees. This difference of 22,443 attendees in favor of small market teams can be explained by two factors. The first being the large market teams having greater competition for fan support, considering other attractions and pro teams competing for same fans. The second factor is the cost of attending a game. The fan cost index shows that the cost of attending a game in a large market increased by 5 percent, comparatively there was a 4 percent increase for a small market team. While a 1 percent difference may seem minuscule, the initial cost of attending a game in a large market was already $53 greater than a small market game. Thus, the 1 percent difference only magnifies the cost of attending a game in a large market compared to a small market. This discrepancy in lockout effect on attendance between markets is also present for revenue. The initial loss of revenue for small market teams was 7 percent. Comparatively, there was a 15 percent revenue loss for large market teams. This magnified loss in revenue could be attributed to similar factors that led to the magnified loses in attendees for large market teams.

Furthermore, other than the difference in magnitude the lockouts effects across the league and its different markets have parallel effects on attendance and revenue. During the examination of lockout effects on attendance, loss in fan support doesn't percent itself as a concern. While the initial effects of both lockouts cost the NBA 271,349 attendees during 1999 and 102,115 attendees during 2012, these losses can be explained by the cancelation of games during each season. Results also show that attendance rebounded quickly following the 2012 lockout. These results are aligned with existing research done on lockouts in other major league sports. Fan support, however, does appear to be at risk when examining the long-term effect on revenue. The

2012 lockout had lowered overall revenue by 10 percent when the sample included the entire NBA. There was also a 10 percent loss in long-term revenue when the sample only included small market teams. These results align with the research by Treber and Mulcahy (2016) done on the NHL lockout.

Evidently, the findings of this thesis prove that the effects of NBA lockouts while differing in magnitude have parallel effects on revenue and attendance across the entire NBA and its different markets. There does seem to be an area of concern regarding fan support which is negatively affected by lockouts in the long-run, but the figures for the long-term effect might have also been altered by the yearly increase in the cost of attending a game. It has also become evident that NBA lockouts follow similar trends to lockouts in the other major league sports.

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Table 1

Market Separations	
Large Market Teams	Small Market Teams
Atlanta Hawks	Charlotte Hornets/Bobcats
Boston Celtics	Cleveland Cavaliers
Brooklyn Nets	Denver Nuggets
Chicago Bulls	Indiana Pacers
Dallas Mavericks	Memphis Grizzlies
Detroit Pistons	Milwaukee Bucks
Golden State Warriors	Minnesota Timberwolves
Houston Rockets	New Orleans Hornets
Los Angeles Clippers	Oklahoma City Thunder
Los Angeles Lakers	Orlando Magic
Miami Heat	Phoenix Suns
New Jersey Nets	Portland Trailblazers
New York Knicks	Sacramento Kings
Philadelphia 76ers	San Antonio Spurs
Toronto Raptors	Seattle Supersonics
Washington Bullets	Utah Jazz
	Vancouver Grizzlies

Table 2

Lockout effects on attendance across the entire NBA and its different markets

	Full NBA	Large Market Teams	Small Market Teams
Lockout1999	-271,349***	-271,462***	-274,129***
	(10,071)	(12,690)	(14,577)
Lockout9900	-9,757	7,623	-568
	(113,368)	(13,020)	(10896)
Lockout9904	-4,157	-16,951	-12,461
	(5,982)	(12,825)	(9,620)
Lockout2012	-102,115***	-148,288***	-125,785***
	(7,793)	(9,051)	(8,353)
Lockout1213	36,477***	4,744	-5,032
	(9,071)	(10,596)	(15,179)
Lockout1217	36,477***	35	-13,248
	(7,241)	(19,122)	(24,719)
Constants	2,942	3,660	2,321
	(2,354)	(2,921)	(3,493)
Observations	779	398	381

Note: t-statistics in parentheses; *p<0.05, **p<0.01, ***P<.001

Table 3

Lockout effects on revenue across the entire NBA and its different markets

	Full NBA	Large Market Teams	Small Market Teams
Lockout1999	-0.579***	-.588***	-0.559***
	(0.0270)	(0.0377)	(0.0340)
Lockout9900	0.0372	0.0303	-0.00837
	(0.0194)	(0.0200)	(0.0189)
Lockout9904	0.0165	0.0384	0.0246
	(0.0105)	(0.0217)	(0.0225)
Lockout2012	-0.0717***	-0.152***	-0.0783***
	(0.0201)	'(0.0452)	'(0.0143)
Lockout1213	0.0782***	0.0489**	0.0210
	(0.0129)	(0.0175)	(0.0122)
Lockout1217	-0.102***	-0.0686	-0.104***
	(0.0136)	(0.0530)	(0.0293)
Constants	0.0898***	0.0915***	0.0943***
	(0.00440)	(0.00626)	(0.00728)
Observations	779	398	381

Note: t-statistics in parentheses; *p<0.05, **p<0.01, ***P<.001

Table 4

Per Game Lockout effects on attendance across the entire NBA and its different markets

	Full NBA	Large Market Teams	Small Market Teams
Lockout1999	-40	-117	7
	(-0.32)	(-0.76)	(0.04)
Lockout9900	-119	92	-7
	(-0.88)	(0.60)	(-0.05)
Lockout9904	-50	-206	-152
	(-0.71)	(-1.36)	(-1.31)
Lockout2012	18	-65	-94
	(.26)	(-0.50)	(0.86)
Lockout1213	2	57	-61
	(0.03)	(0.45)	(-0.33)
Lockout1217	23	27	-161
	(0.41)	(0.11)	(-0.53)
Constants	34	44	28
	(1.35)	(1.27)	(0.67)
Observations	779	398	381

Note: t-statistics in parentheses; *p<0.05, **p<0.01, ***P<.001

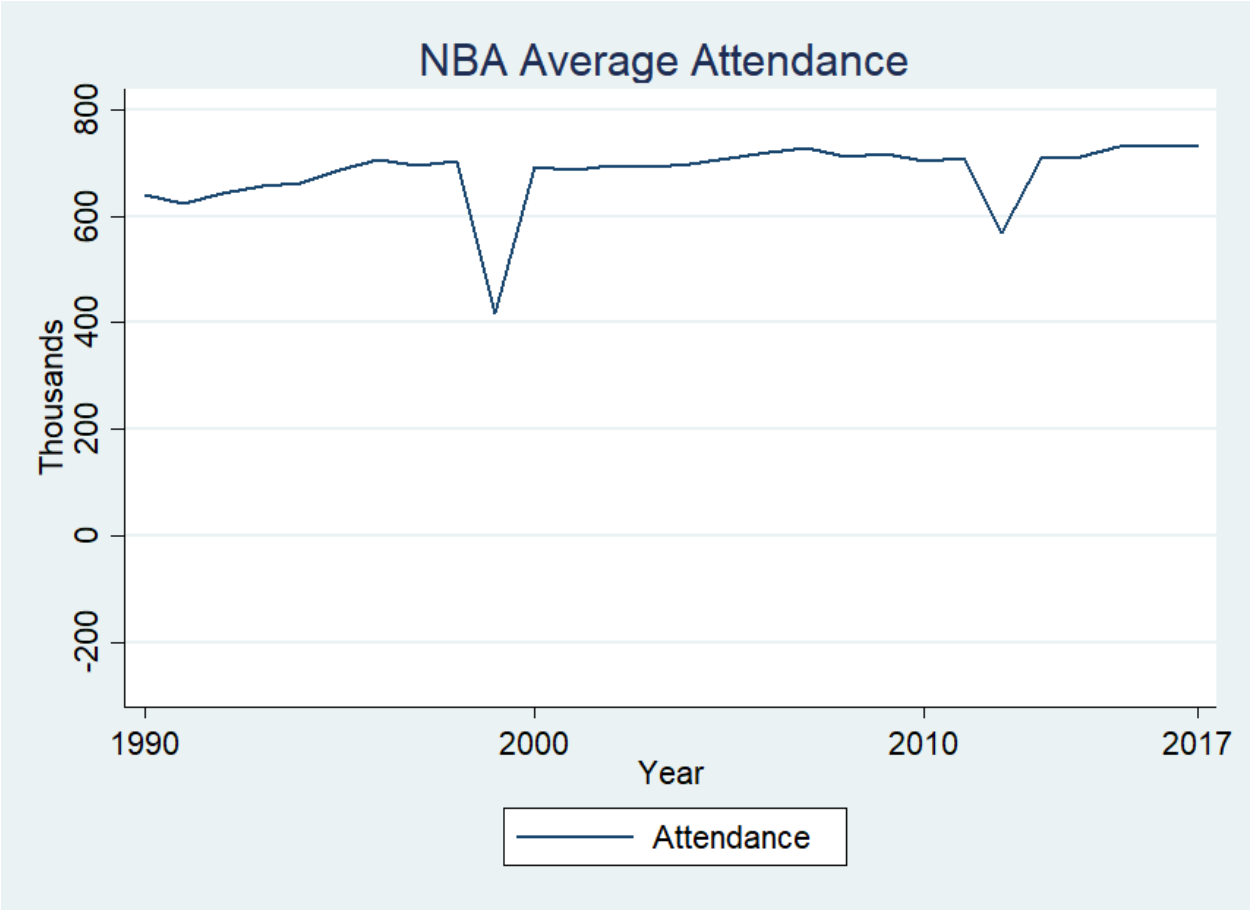
Table 5

Per Game Lockout effects on revenue across the entire NBA and its different markets

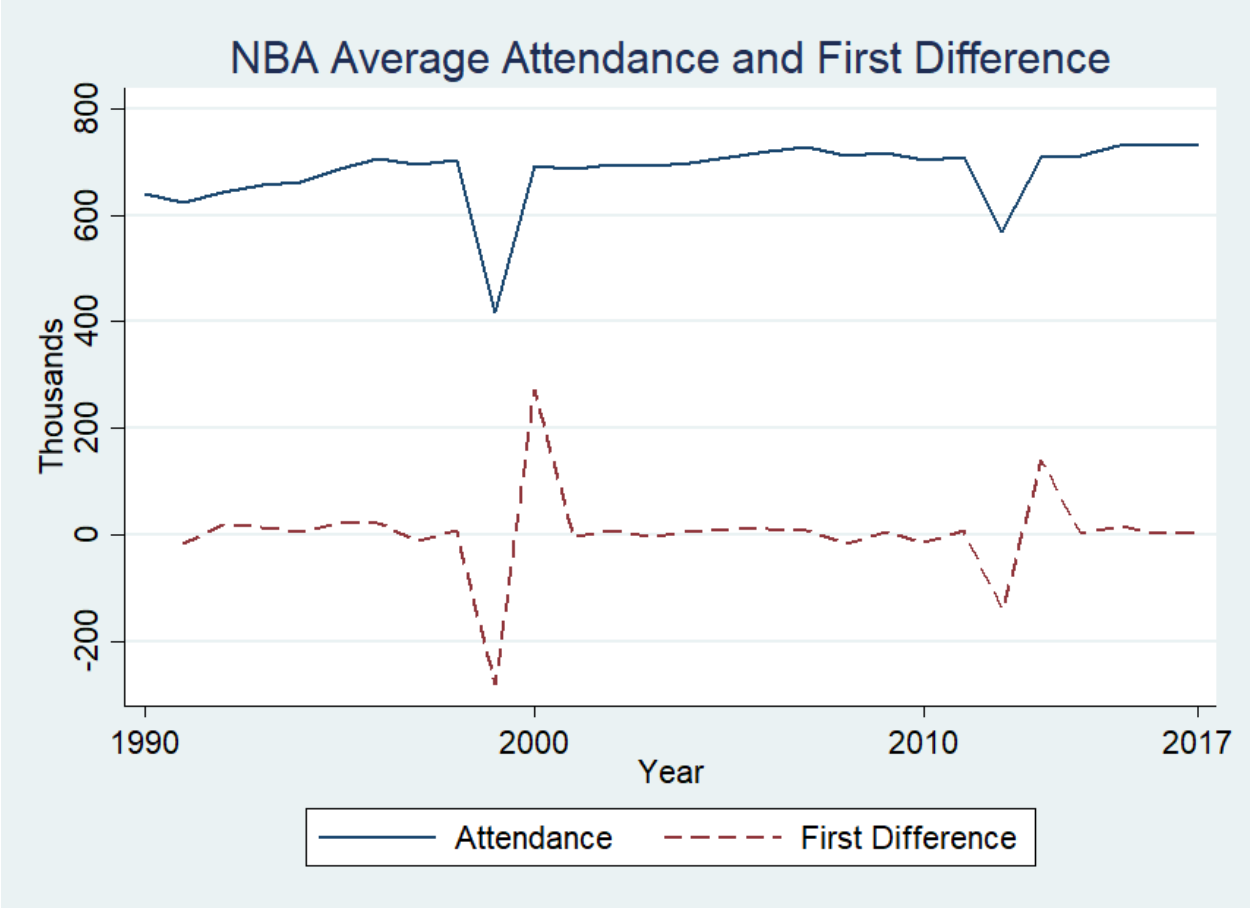
	Full NBA	Large Market Teams	Small Market Teams
Lockout1999	-0.0846**	-0.0935*	-0.0643
	(-3.13)	(-2.48)	(-1.89)
Lockout9900	0.0373	0.030	-0.0084
	(1.92)	(1.52)	(-0.44)
Lockout9904	0.0165	0.0348	0.0246
	(1.57)	(1.77)	(1.09)
Lockout2012	0.0911***	0.0654	0.139***
	(4.85)	(1.45)	(9.70)
Lockout1213	0.0239*	0.0489**	0.0210
	(2.24)	(2.79)	(1.72)
Lockout1217	-0.156***	-0.0686	-0.104***
	(-13.66)	(-1.29)	(-3.53)
Constants	0.0895***	0.0915***	0.0943***
	(21.19)	(14.63)	(12.97)
Observations	779	398	381

Note: t-statistics in parentheses; *p<0.05, **p<0.01, ***P<.001

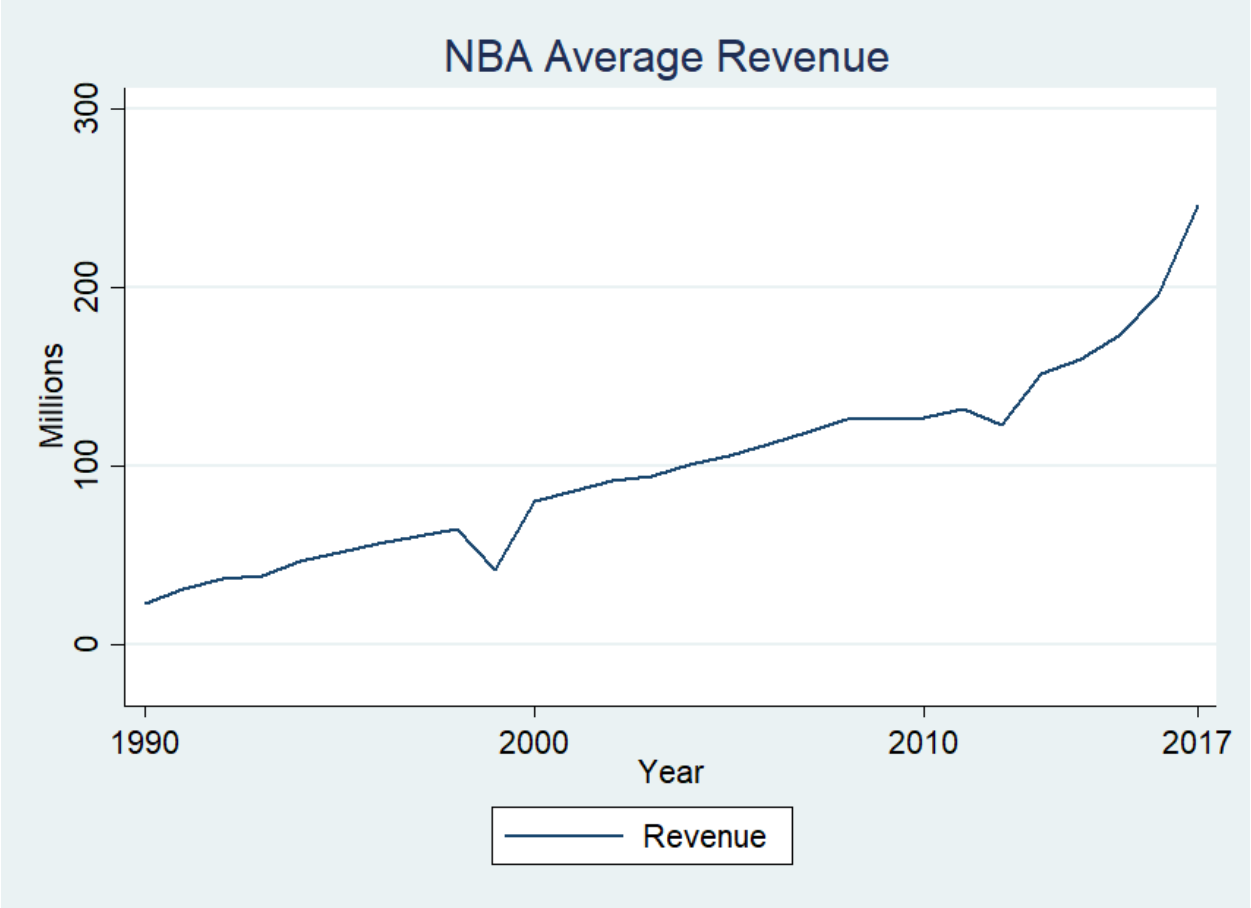
Graph 1


NBA Average Attendance
Thousands
800
600
400
200
0
-200
1990
2000
2010
2017
Year
Attendance

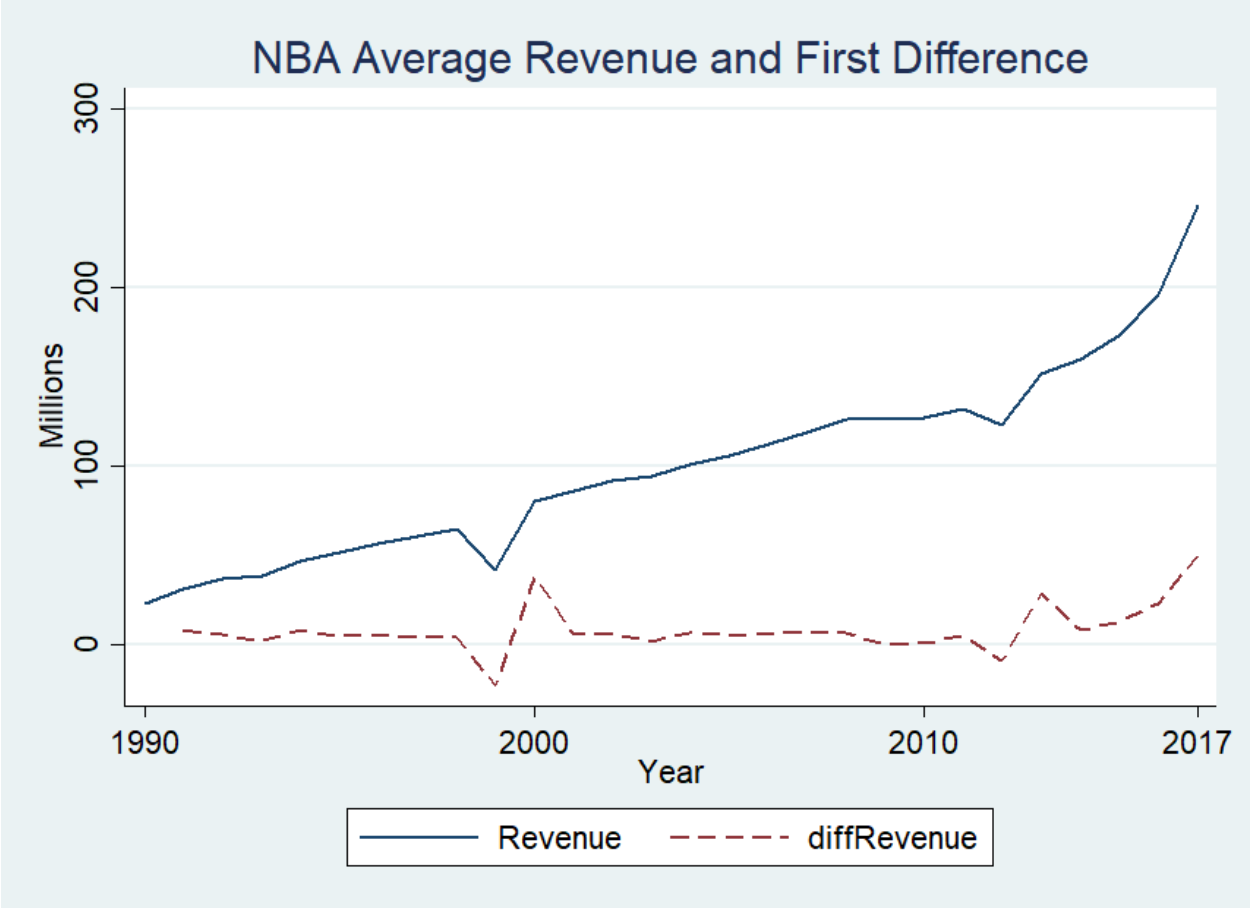
Graph 2


NBA Average Attendance and First Difference
Thousands
800
600
400
200
0
-200
1990
2000
2010
2017
Year
Attendance
First Difference

Graph 3


NBA Average Revenue
Millions
0
100
200
300
1990
2000
2010
2017
Year
Revenue

Graph 4


NBA Average Revenue and First Difference
Millions
0
100
200
300
1990
2000
2010
2017
Year
Revenue
diffRevenue