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Can NBA Teams Benefit from Losing?

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Can NBA Teams Benefit from Losing?

*A study on Tanking and Competitive Balance in Professional
Basketball*

Ryan Hallisey

Honors Senior Thesis in Economics
College of Liberal Arts and Sciences

Introduction

The National Basketball Association (NBA), Agents (or teams), respond to incentives just as any other actors would in a market. As many economists have noted (Taylor and Trodgon; Price et al) the NBA is a good a representation of what is known as tournament theory. Tournament theory, developed by Lazear and Rosen (1981), focuses on rank- based rewards and incentives based on performance relative to other agents. Reward for effort is based only on performance compared to competitors, it doesn't matter how well you do if it falls short compared to other agents taking part in the same tournament. Thus, this theory predicts that the greater the reward, the greater effort a team will exert. In professional sports, including the NBA, the better a team performs the greater chance they have of making the post season and winning a championship. Being a winning and successful teams brings along with it not only additional revenue from added games, but also fame, which in turn leads to increased media coverage, advertisements, and fans becoming more invested in the team, then in turn leads to a higher demand for tickets, as well as attracting successful and star players. All of these contribute to a team's overall prestige and revenue.

In many professional sports, an entry draft takes place in between seasons in which teams have an opportunity to select amateur players who are eligible to become professionals. Teams that do not qualify for the postseason, and thus do not have an opportunity to win the championship, are given higher draft picks in an effort to maintain equality and competitive balance in the league. The worst teams get the highest draft picks. However, based on the tournament model discussed previously, this implies that teams have an incentive to exert less effort in order to perform worse off and thus receive a higher draft pick. This would allow the

team to acquire a player of higher quality than they may deserve based on the teams overall talent when compared to the rest of the team. A team that is not good enough to qualify for the playoffs but better than many of its competitors who also will not qualify could lose intentionally to acquire a better player, which the teams that are actually worse off deserve. This strategy throws the entire point of this draft system, which is to maintain competitive balance, into disarray.

Starting in 1966 year the NBA initially put into place a straightforward reverse order draft. The worst two teams from each conference would flip a coin to determine who gets the 1st pick and from then on the teams would pick based on reverse rank. For the 1984-1985 season the NBA changed the draft system in response to increasing pressure and allegation that teams were tanking or losing on purpose in order to increase their draft position. The system was changed so that each team that did not make the playoffs was given an equal chance to gain the first overall draft pick in a lottery system. The system used today was put in place for the 1989-1990 season, in an effort to increase parity throughout the league, as the league office felt the competitive balance was being compromised by the equally-weighted system. Although it was modified in 1992-1993, giving more weight to the worse teams to insure they received higher draft picks, teams with the worst records were given a greater probably of landing the number one pick and so forth. In a format such as this when a team is eliminated from playoff contention, they have no incentive to continue to win games and actually have an incentive to lose more so than their competitors in order to increase their odds of securing a higher draft pick. If a team, once eliminated, loses more than its competitors who have also been eliminated, then they have a better a chance of gaining a better player, and thus, an advantage over the other teams.

Tanking in the NBA

The issue of shirking or ‘tanking’ (losing on purpose) is the most prevalent in the NBA among major sports and is often a topic of much debate and discussion amongst the sports media. The NBA and basketball as a whole consist of teams with only five competitors on the floor at any given time. This is much, much less than any other major sport that has a similar lottery system that might create an incentive to lose. In baseball, a sport that fields nine players, and where around 20 make significant contributions, less than half of players picked after the first round make the major leagues, and even those that are first round draft picks, where 80% make it, there isn’t a great chance that they will make major contributions. If they do, it will most likely be years in advance (Kennedy 2015). In the NFL, high draft picks are certainly more valuable and coveted. However teams start 22 players (11 on offense and 11 on defense), and limiting one player’s ability to make a team go from mediocre to championship contender.

In the NBA a single player can change a team’s fortunes. Michael Jordan carried the bulls to six championships; LeBron James’ teams haven’t missed the playoffs since 2006, when he was still in the first few years of his career; the Dirk Nowitzki led Dallas Mavericks haven’t missed the playoffs since 2000, despite the entire roster constantly changing along with numerous coaching changes. The NBA is a league centered on stars, not only from a winning perspective but from a money perspective. One of the most effective ways to acquire stars in basketball is through the draft, and the majority of stars in the draft are taken within the top three picks. Price et al, using data from Berri (2008), track the probability of gaining a superstar in the top 3 picks of the draft. They use Berri’s data on the wins an average NBA player provides and define a

superstar as someone who provides contributes twice as many wins as the average player.

According to their data, the 1st pick has over a 30% chance of achieving superstar status. The 2nd and 3rd, picks while a cut above the rest, show similar statistics to each other and are significantly below the 1st pick. Roland Beech (2009), a data analyst who currently works for the Sacramento Kings of the NBA, created a similar metric to define a star player and calculated that the first five picks of the draft have a significantly higher (approximately 60-75% compared to 20-35%) chance of becoming a star when compared to the rest of the field. To win in the NBA, you need dominant, star players, and one of the best ways to attain them is through the draft, especially considering NBA rookies are signed to rookie scale contracts for their first four years. This allows teams to pay a potential star they have drafted much less than they would a player of equal talent in free agency, allowing them to sign other players in order to improve their team.

The NBA is also one of the least competitively balanced professional sports. Since the 1985-86 season, the year the current lottery format was put into place, only nine teams have won championships and other than the Mavericks and Warriors, all of them have won multiple titles. This trend looks set to continue this year as well as both the Spurs and Warriors (both previous winners) are heavy favorites to win the championship. That is only 30% of teams in the NBA that have won a championship in the past 30 years. In Major League Baseball since the same year, 19 different teams have won titles, over 63% of teams. In the NFL 15 different teams have won titles, almost 47%. For the most part, in the NBA the good teams remain good and the bad teams stay bad. This unevenness encourages mediocre teams to use any means they can to gain an advantage, such as losing on purpose, in order to give them a chance to be competitive.

Economists have attempted to create models in the past that prove that teams do in fact lose on purpose, or 'tank'. These past examples use tournament theory developed by Lazear and

Rosen as a basis, which predicts that if teams have an incentive to lose then they will do so. The question then becomes if teams did tank, how it has impacted the team's future outcomes, and is there a noticeable difference between teams that did not tank and teams that did?

Overview

This section first reviews past studies by economists, including Taylor and Trogdon, as well as Price et al, who have created models and data in an attempt to demonstrate whether or not teams do in fact lose on purpose. Both of these papers make a compelling argument in favor of teams tanking. Then, taking the fact that tanking does take place as given, I create a simplified model using win percentage before and after elimination in order to confirm their studies and show that this method also indicates that teams tanked, as the evidence from this method coincides with both studies. It is then used to select specific teams in order study the outcome that tanking had on teams that took part in it. The four teams selected all have demonstrated patterns that suggest that they shirked in some way over the given period. The years following this period of perceived tanking are then looked at to determine the impact that losing on purpose had on each franchise, and if it was positive, and if there is any similar patterns between the teams. Two teams that appeared to have not engaged in this manner of tanking are also looked at to see if there are any comparisons to be made. Although, it may be difficult to draw any conclusions from, as it is much more difficult to pinpoint and define teams that were not in fact tanking. It is of my belief that tanking by itself is not enough for a team to improve its fortunes substantially. In addition some manner of luck and signing good players has a major impact, although tanking may encourage the ability to do this effectively.

Past Studies/Literature

Using tournament theory as a basis, once teams in the NBA have nothing to play for, i.e. can no longer win the championship by way of being eliminated from playoff contention, they should in theory lose on purpose in order to enhance their draft position. Various economists have attempted to study and prove that this phenomenon does in fact exist by creating models.

In 2003 Trogdon and Taylor looked at 3 different seasons of the NBA. In each season a different method was used to determine the draft order. The 1st season they looked at used a straightforward reverse-order draft, from the 1983-84 season. They then looked at the season where there was an equally weighted lottery. Finally, they analyzed the current system in place: the weighted lottery. Trogdon and Taylor then created a model to predict a team's likelihood to win a game, taking into account various factors. Using this model on the three seasons they looked at their evidence showed that in the season that used the straightforward reverse-order draft, as well as the current system, teams that were eliminated from the playoffs were much more likely to lose than teams that had clinched the playoffs, even when controlling for quality of the teams and whether the game took place home or away. The system where each non-playoff team was given the same chance to receive the number one overall pick showed no evidence that teams, once eliminated, were more likely to lose. This coincides with tournament theory that Taylor and Trogdon based this study upon, as there was no incentive for a team eliminated to lose.

In 2010, Price et al, created a similar model to that of Taylor and Trogdon (2003) in order to extend their research onto a large subset of data. Their results, from 1977-2007, show similar conclusions to that of Taylor and Trogdon. Although, they found that tanking in the 1984 season and before, when there was a straightforward reverse-order draft, was much less prevalent and only

occurred in certain years. They also found that tanking was most prevalent shortly after the adjusted weighted lottery system was put into place in 1992. The next 7 seasons showed the most obvious evidence that tanking took place.

Soebbing and Humphreys (2011) also attempted to analyze evidence as to whether or not there was a possibility teams tanked. However, instead of creating likelihood models similar to what the two previous works discussed, they looked at betting odds for the NBA and if they showed any shift towards the end of the season that would indicate that teams tanked when they had an incentive to do so. Their evidence found that that betting markets show evidence that they believe teams do tank by a change in point spreads towards the end of the season once teams are eliminated.

Borland (2009) conducted a study to analyze whether or not tanking occurred in a different sport: Australian Rules Football (AFL). The study was inspired by various literatures put forth by economists that there was evidence that teams did in fact tank in the NBA. The AFL pits teams of 18 against one another and features a similar straightforward reverse-order draft that the NBA used before the 1985 season. Under this format Taylor and Trogdon found evidence in the NBA that tanking took place, while Price et al found similar evidence, albeit not as strong as it only took place during certain seasons. Borland creates a similar model to analyze the likelihood that teams tank in the AFL. Borland's results showed that there is no evidence that tanking takes place in the AFL. Borland speculates that tanking does not take place because the cost of tanking is much greater than the benefit in this particular sport. With 18 players on the field, one highly talented player is much less likely to have a great enough impact to offset the cost of losing on purpose that can affect things such as revenue. This result coincides with the discussion put forth previously in this paper that tanking is more prevalent in the NBA than in

other sports where there may be an incentive to tank partly due to the small number of players (5) on the court at a given time and the impact that one individual player can have.

Data

If we take it as given that the models created above by various economists support the likelihood that tanking does exist in the NBA in the form of teams losing intentionally once they are eliminated from the playoffs, then a simplified model using win percentage before and after a team's elimination should show similar results. This data can then be used to select teams that appeared to have tanked and not tanked and analyze the team's outcomes after said tanking occurred. Table 1 below shows the collective win percentage of every team aggregated together before and after they were eliminated from the playoffs from the 1994-1995 season to the 2004-2005 season. This data was collected by first identifying each team that did not make the playoffs each season, finding the date they were mathematically eliminated from the playoffs, and then comparing the teams win percentage before they were eliminated to after elimination. The total games played for every team before elimination for that season was then divided by the total number of wins before elimination to find the total win percentage before elimination. The same thing was then done for each team and aggregated together after elimination. Table 2, below, shows an example of the data for one season in particular that was analyzed.

Table 1			
Season	Before	After	Difference
94-95	0.373	0.259	-0.114
95-96	0.361	0.270	-0.091
96-97	0.322	0.276	-0.046
97-98	0.325	0.263	-0.062
98-99	0.341	0.267	-0.074
99-00	0.341	0.348	+0.070
00-01	0.365	0.324	-0.041
01-02	0.372	0.341	-0.031
02-03	0.382	0.298	-0.084
03-04	0.392	0.326	-0.066
Total	0.359	0.297	-0.062
Average			-0.054

As you can see in Table 1, showing every season from 1994 to 2004, teams once eliminated from the playoffs, collectively lost more games on average, or got worse than they were prior to elimination overall and in every season except for one. Approximately 60% of teams, once eliminated from the playoffs, saw their win percentage fall. Although this is a much more simplistic variation it does serve to support the conclusions put forth by both Taylor and Trogdon, and Price et al. It also shows similar results to Price et al.'s findings that teams tanked more so after the lottery weight was adjusted going into the 1993 season. This data shows that the biggest drop in win percentage did occur in the seasons following the 1993 season. However, their data supported the idea that tanking was most prevalent all the way until 2000. It is important to note that their data also used various control and dummy variables to make their predictions more accurate so the win percentage shown above does not necessarily disprove their findings.

Due to the overall findings in this data supporting previous studies showing tanking, it can then be used to select specific teams that exhibited tanking patterns. Table 2 shows the

example of data for one season. The data for a single team can then be taken over this 10 year period to observe whether or not the team saw a consistent drop in win percentage after elimination, which would suggest a strong likelihood that a team tanked. Based on this concept, four teams were selected that exhibited this pattern. Teams were selected by looking at their win percentage season by season before and after elimination, and then pinpointing consecutive seasons where they were eliminated with around 10 games or more left to play and their win percentage dropped after elimination. Some teams below were also selected that saw their win percentage drop after elimination but were eliminated with less than 10 games to play. However, this drop off, although over a briefer segment, allowed them to fall below other teams in the standings; giving them greater odds at a higher draft pick. After this, their following seasons were observed in order to analyze if tanking has any consistent effect, positive or otherwise, on teams that took part in it. Two teams that appeared to not practice tanking are also selected and looked at to help show both sides. These two teams consistently missed the playoffs over the given period, however, after elimination, even when they had 10-20 games left to play, rarely, if at all, saw their win percentage fall. Only two teams were selected for this portion as very few teams exhibited a consistent trend of a non-falling win percentage after elimination from the playoffs.

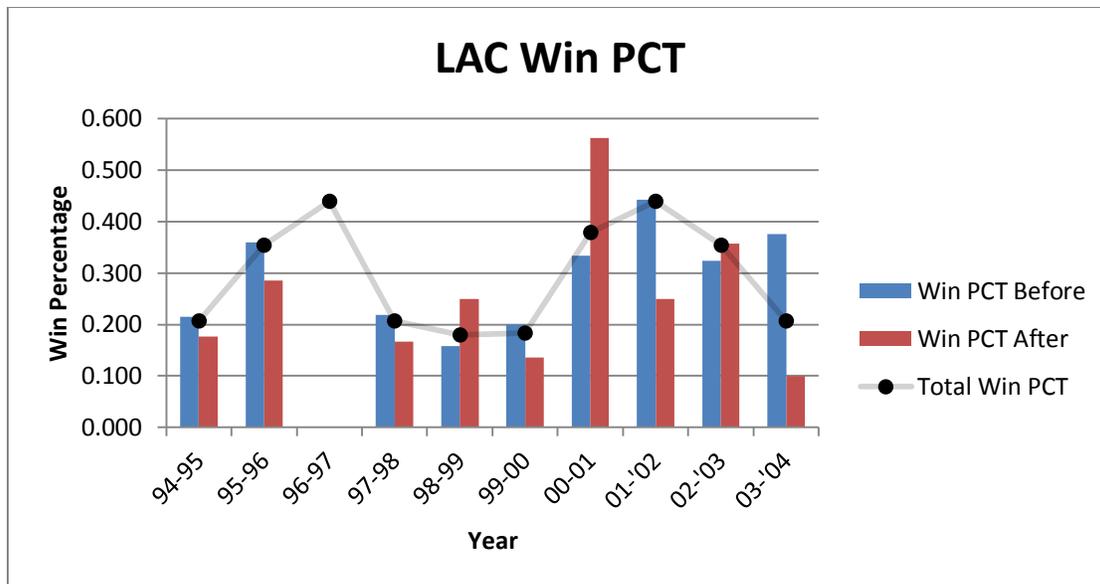
Table 2 (example year)

2002-2003					
Team	Win PCT	Date elim	games left	Before	After
DEN	0.207	5-Mar	20	0.194	0.250
CLE	0.207	7-Mar	20	0.177	0.300
TOR	0.293	30-Mar	10	0.319	0.100
MIA	0.305	23-Mar	12	0.314	0.250
LAC	0.329	21-Mar	14	0.324	0.357
MEM	0.341	26-Mar	11	0.366	0.182
CHI	0.366	29-Mar	8	0.351	0.500
ATL	0.427	8-Apr	5	0.403	0.800
WAS	0.451	12-Apr	2	0.463	0.000
NYK	0.451	11-Apr	3	0.456	0.333
GSW	0.463	9-Apr	4	0.487	0.000
SEA	0.488	11-Apr	3	0.494	0.333
HOU	0.524	12-Apr	2	0.512	1.000
Total				0.382	0.298

Team by Team-Tanking Teams

Los Angeles Clippers

The Los Angeles Clippers (LAC) have a history of being below average up until very recently. In the 10-year period analyzed, the Clippers made the playoffs only one time, and never had a win percentage above .500. In 6 of the 8 seasons in which they were eliminated from playoff contention, the Clippers win percentage dropped after they were mathematically eliminated. The graph below shows the win percentage before and after elimination in each season that the clippers failed to make the playoffs. (The Clippers were eliminated from the playoffs with at least 7 or more games to play every season except for 2001-2002).



The most clear indication of the Clippers using tanking tactics appears between 1994 and 1998, a period of four seasons. As shown in the LAC graph above, for both the 94-95 and 95-96 seasons the Clippers were eliminated with 17 and 7 games left, respectively, and after elimination they saw a dip in win production. Although the Clippers were able to earn a playoff spot in the 1996-1997 Season, despite their losing record, they were eliminated from contention the next season (97-98) with 18 games to play and proceeded to win only three of their remaining games.

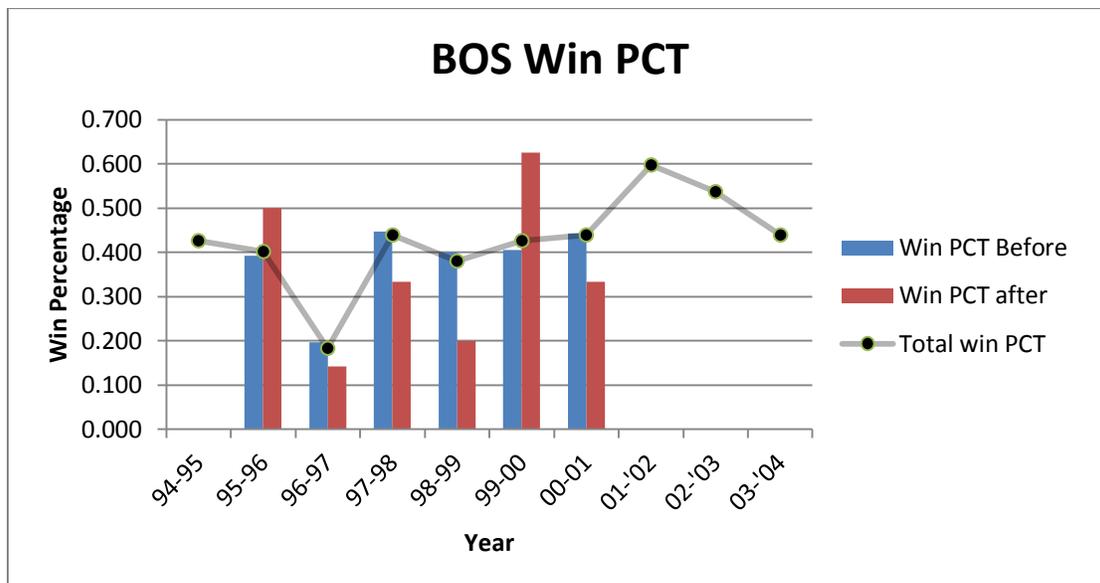
After the 1995 season the Clippers were lucky enough to receive the 2nd overall pick, which they then traded for a player and a mid-first round draft pick. The rookie they drafted, Brent Barry, and the player they traded for, helped them improve their record the following year, although once again they showed evidence of tanking; winning only two of their last seven games, which was a decent margin below their season average. In the following season the Clippers continued to improve. Although they posted a losing record they were able to make the playoffs, where they were eliminated in the first round. The following year (97-98) however, the Clippers collapsed early on after playing poorly and due to an injury to a key player, and

proceeded to trade away many of their young players, including the promising Brent Barry. As mentioned above, they proceeded to win only 3 of their remaining 18 games. The Clippers once again received a top three pick. This time; they drafted Michael Olowokandi with the first overall pick, a promising big man, who in the end turned out to be one of the biggest busts in draft history.

In the following 6 seasons, as shown in the graph above, The Clippers lingered towards the bottom of the league, although they began to show signs of improvement before once again plummeting to the bottom. Twice the Clippers were able to gain a top 3 draft pick, but both times the pick resulted in having a very limited impact on the teams overall performance. The team ultimately failed to show consistent improvement through tanking, but gave themselves the opportunity to do so by gaining two top three picks, which gave them decent chance to land a star player who could have an impact. As both Beech (2008) and Berri (2009) showed in their studies discussed earlier in this paper ,the top 3-5 picks are significantly more likely to be a star compared to the rest of their draft class peers. The Clippers do however; show a trend similar to the other tanking teams examined in this study. They have periods of very poor performance, often accompanied, by tanking, followed by a slight increase in win percentage over the following years, before dropping back down to the bottom, and then improving again slightly. From this we can speculate that tanking may have improved the prospects for the Clippers, as we saw them improve after trading their first top-3 draft pick for a player and Brent Barry, however this improvement was not enough for the Clippers to be a consistent playoff team and thus they traded away Barry and attempted to tank once again in the 97-98 season. They then once again received a top overall pick, and again improved over the following years, although not necessarily due to their draft pick, before once again dipping in performance.

Boston Celtics

The Boston Celtics traditionally are one of the most competitive teams in the NBA. As of today they hold the most championships in NBA history, and account for almost 25% of all championships since the founding of the league in 1946. However in the 90s and early 2000s, the period studied in this paper (95-04), the Celtics struggled to be competitive. They failed to qualify for the playoffs for seven straight years, from the 95-96 season to the 00-01 season.



The above graph shows Boston's win percentage for the years looked at in this study. From the 96-97 season to 98-99, the Celtics Win percentage dropped significantly after elimination from playoff contention. In the 96-97 season the Celtics were eliminated with 21 games left to play and proceeded to win only 3 of their final 21 games. The only team with a worse record that season, the Vancouver Grizzlies, was eliminated at around the same time as Boston. Boston then proceeded to perform much worse than the Grizzlies in the run up to the end of the season, possibly implying that they were attempting to "catch" the Grizzlies in an effort to increase their odds to secure the number one pick. In the following two seasons (97-98 & 98-99),

the Celtics exhibited signs of a different sort of tanking, as they were eliminated with much fewer games remaining in the season; six and five respectively. However, their performance, or lack thereof, following their elimination in both these seasons allowed their record to become worse than teams close to them in the standings who had worse records than them leading up to elimination. By losing games after elimination, Boston was able to secure greater odds of landing a higher draft pick by decreasing their place in the standings.

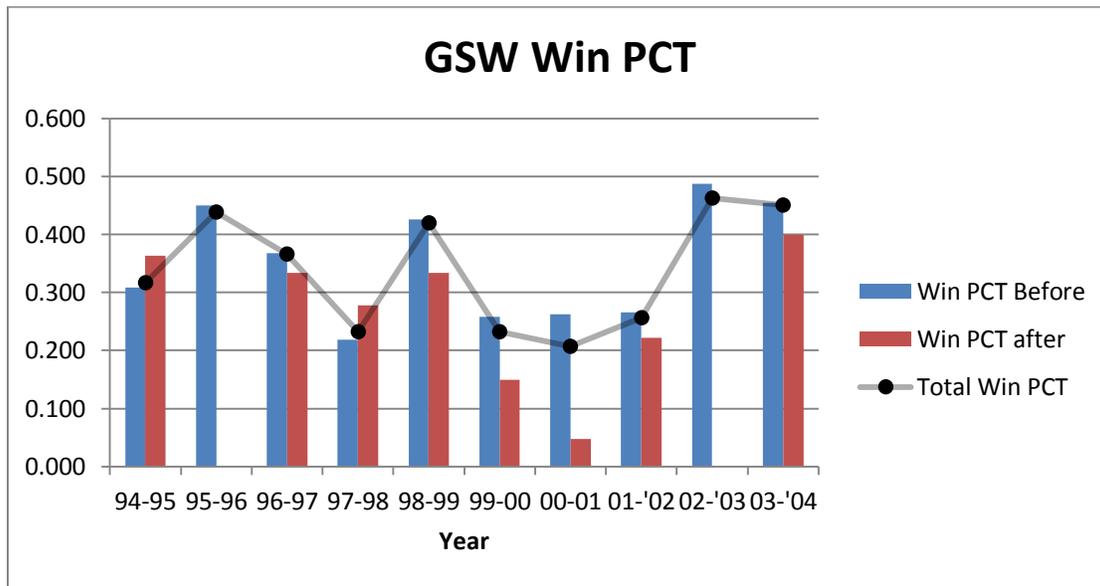
Following the 1997 season, the Celtics, with the 2nd worst overall record, received the 3rd overall pick in the NBA draft. With this pick the Celtics drafted, Chauncey Billups, a player who would go on to have an extremely successful NBA career, and would go on to lead the Detroit Pistons to an NBA championship and be named the Finals Most Valuable Player. However, the Celtics struggled to develop Billups and felt he would not be successful and traded him for a more established player only a little more than half-way through his first season with the team. They also traded for the number six overall pick in the 1997 draft where they selected Ron Mercer, only to trade him away as well, albeit two seasons later. The Celtics were able to improve slightly the following two years (97-98,98-99), after receiving a more NBA ready player for Billups, Ron Mercer being named to the all-rookie team before being traded after the second season, and drafting future rookie Paul Pierce. It was with Paul Pierce in the 1998 draft where the Celtics were finally able to strike gold, drafting the perennial all-star with the 10th overall pick. The Celtics traded their 1999 draft pick for immediate talent, and in the following years, with the help of Paul Pierce they saw continued improvement, culminating in 4 straight playoff appearances from 01-'02 to 04-'05.

The Celtics tanking from 1996 to 1999 helped them receive numerous high draft picks. These draft picks did not necessarily contribute directly to team wins but through trades as well

as the drafting of Paul Pierce they were able to consistently improve. Without the heavy drop off in performance after elimination in the 98-99 season the Celtics may not have received a high enough draft pick to draft Pierce. The Boston Celtics serve as a good example of a team that was able to improve through tanking by gaining immediate talent in the draft through Pierce.

Golden State Warriors

The Golden State Warriors had on and off success in the late 80s and early 90s. However, in the 10-year window looked at in this paper they failed to make the playoffs a single time, and would not do so again until the 2006-07 season. In 8 out of these 10 seasons Golden State's win percentage decreased after being eliminated, as you can see in the graph below showing the Warrior's win percentage over the 10-year window.



As you can see above, the Warriors struggled mightily each season, and saw very little consistency in terms of record from year to year, while consistently getting worse once eliminated from contention. However, from the 1999-2000 season to the 01-'02 season Golden State demonstrated its most obvious signs of tanking. In each of these three seasons the Warriors

were eliminated with around a month left to play and at least 18 games left or more. In each of these seasons we see a drop in their win percentage, especially in 99-00 and 00-01.

In the 1999-2000 season the Golden State Warriors struggled mightily, amid midseason injuries to various players, as well as trading away starters. They were eliminated with 20 games to play in the season and won only 3 of their final 20 games, finishing with the third worst record in the NBA. The interesting thing about this instance is that the Warriors did not have a first round draft pick in the 2000 draft. This calls into question why the Warriors record dropped so heavily after elimination from the playoffs. This statistic calls into question not only my methods in pointing out teams that lost on purpose, but also the more advanced methods used by Taylor and Trogon, as well as Price et al, as their methods would also show that the Warriors lost more games in this period than they statistically should have. In the other two seasons where Golden State did not have a first round draft pick initially (in both they would end up trading for one after the season), they showed very little signs of tanking. In the 1995-96 season, they were in playoff contention, barely missing the playoffs and improving as the season went on, and the 1997-98 season, where they actually got better once being eliminated from the playoffs with 18 games left to play.

In the following season, 2000-01, Golden State exhibited maybe the most obvious tanking of all teams looked at over this 10 year window. They were eliminated with 21 games to play and proceeded to win only one of their 21 games, dropping their win percentage from .262 all the way to .207, in the span of only a month. This may have been an effort to gain the worst overall record, but they fell two games short of catching the Chicago Bulls. The Golden State Warriors then received the 5th overall pick, and used it to draft Jason Richardson, a guard who would have a hugely successful NBA career. The following year, Golden State improved slightly

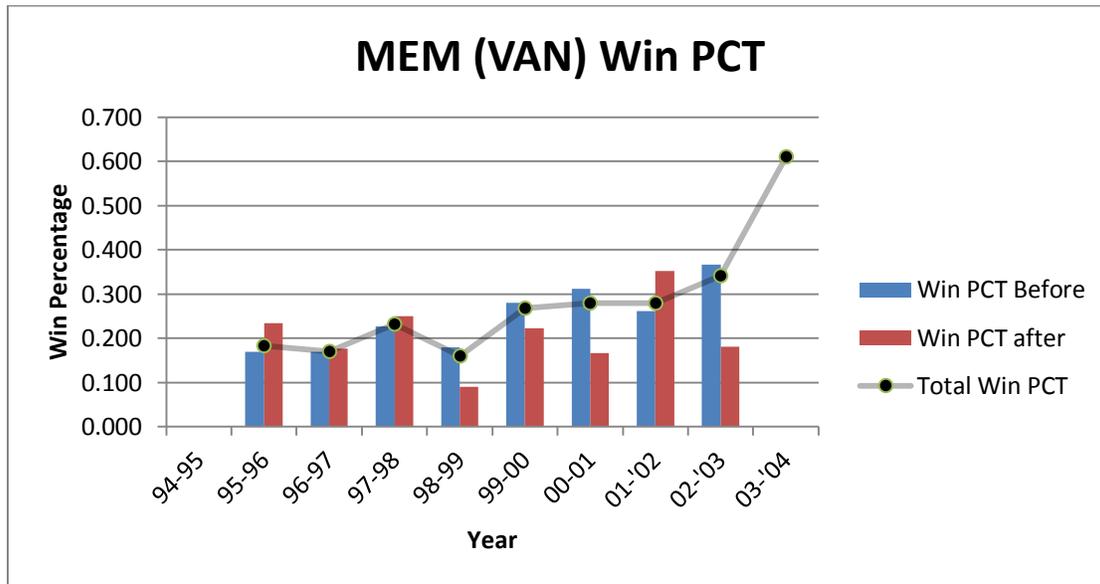
but still exhibited the familiar signs of tanking as their win percentage fell after being eliminated with 18 games to play. This time, however, their losing after elimination allowed them to “catch” the Chicago Bulls and gain the worst overall record in the league. With this record the Warriors selected Mike Dunleavy, a player who, while not a star as they might have hoped, became a very solid NBA player and helped lead them, along with free agent signings, and Jason Richardson, to a playoff appearance in 2007, and a series win. The Warriors struggled in the seasons following this, however, and traded and let go much of the roster in an effort to rebuild once again.

Although the Warriors failed to be consistently competitive after tanking they show the familiar trend of repeatedly improving for a few seasons and then struggling for a few seasons. After the three year period where it was most blatant that the Warriors tanked, from 1999 to 2002, we also saw the most marked improvement in the years following, culminating in a playoff appearance.

Memphis (Vancouver) Grizzlies

The Grizzlies were an expansion teams that arrived in the league for the 1995-1996 season. Initially based in Vancouver they were relocated to Memphis for the 2001-2002 season. In the 10-year window looked at in this study the Grizzlies made the playoffs one time, in the final season, 2003-2004. The Grizzlies saw their win percentage drop after elimination in the playoffs in only four of the nine seasons in which they did not make the playoffs. However as you can see in the graph below, these seasons all happened just about consecutively from 98-99, to 02-03. The Grizzlies did not exhibit signs of tanking in their first few years in the league, possibly to attract as many new fans as they could, as a new franchise starting off its career by

losing game on purpose would certainly not help revenue and overall buzz about the team. After these first few seasons, the only other year in which the Grizzlies did not appear to tank was their first year in Memphis, adding to the evidence of a new team shying away from losing intentionally.



The graph above demonstrates the Grizzlies win percentage dropping every season from 98-99 to 02-03, with the exception of the 2001-2002, season, their first in Memphis. In the 1999 NBA draft the Grizzlies received the number two overall pick, thanks to their losing efforts. This was the second consecutive year the grizzlies received the 2nd pick, drafting a solid young player in Mike Bibby the previous year. However, controversy surrounded their draft pick in 1999, because Steve Francis did not want to play for them and they made the decision to trade him for a variety of players and draft picks. In 2000 the Grizzlies, once again exhibited signs of tanking, although improving slightly overall, and once again gaining the number two overall pick. They drafted Stromile Swift, a player who failed to live up to expectations of such a high draft pick. In their final season in Vancouver, the Grizzlies once again improved slightly over the season, and then saw their win percentage after once being eliminated from the playoffs. Their improved

record netted them only the 6th overall pick in 2001, which they used to draft Shane Battier, a very successful NBA player. The Grizzlies also traded for the 3rd overall pick, using it to draft Pau Gasol, who evolved into one of the best big men of the last 15 years. Led by Battier, and Pau Gasol the Grizzlies were able to make 3 straight playoff appearances from the 2003-04 season to the 2005-2006 season, although all these appearances ended in first round exits.

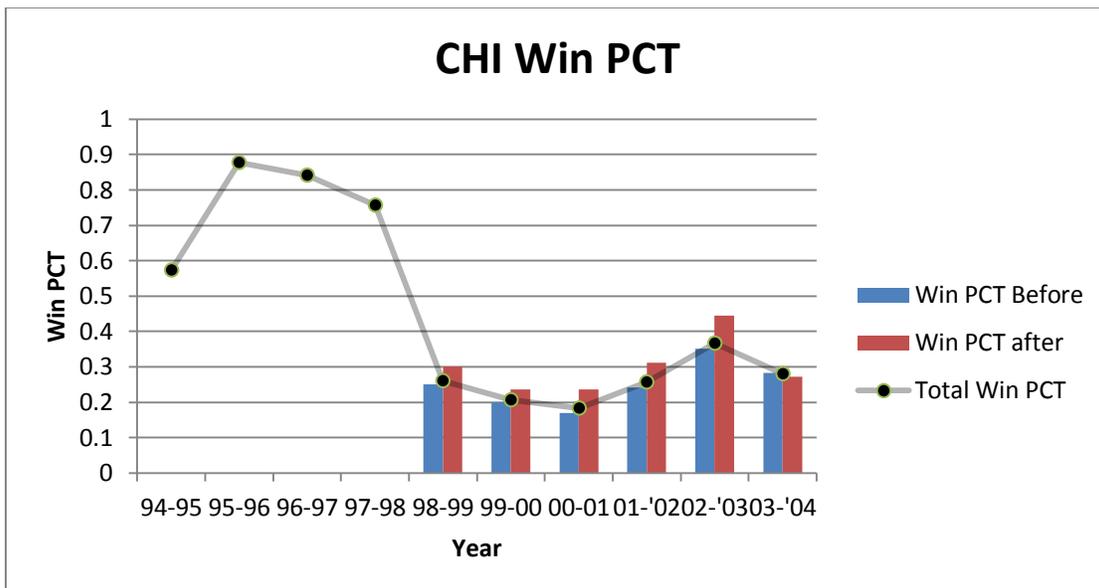
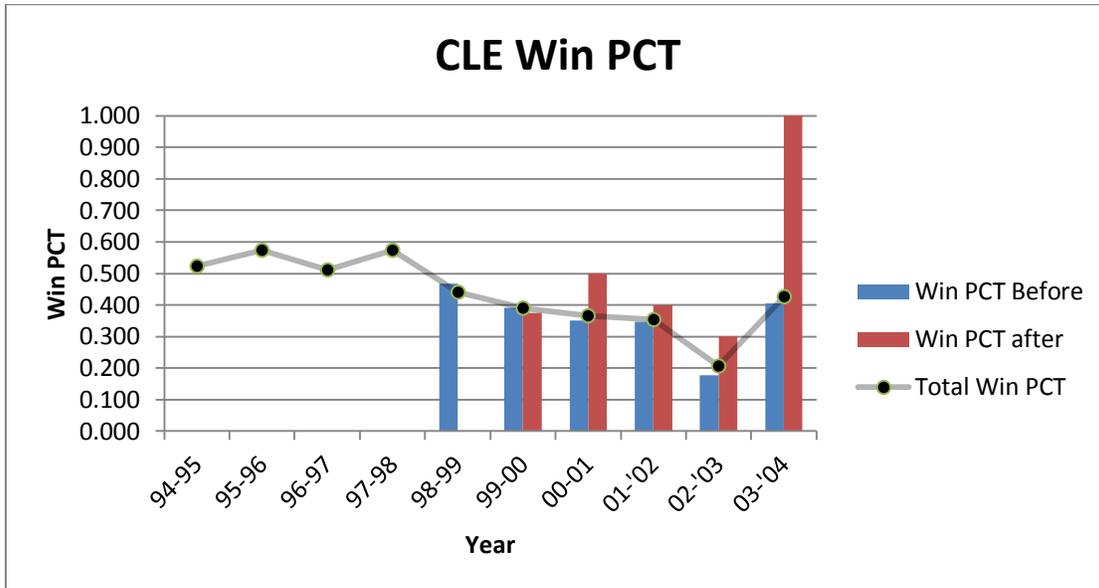
The Grizzlies did not demonstrate the familiar trend up and down trend of win percentage as the previous teams had, as they consistently were very poor before eventually improving significantly. They did improve in a familiar way however, through the draft. They were able to obtain a solid player in Shane Battier, while also trading up for a top three draft pick, by trading a previous top draft pick of theirs who had developed into a successful NBA player. Led this draft pick, Paul Gasol, and Shane Battier they were able to improve markedly and become a consistent playoff team. Tanking helped the Grizzlies receive so many high draft picks which eventually they were able to translate into success.

Team by Team- Non-Tanking Teams

Chicago Bulls and Cleveland Cavaliers

The Chicago Bulls and Cleveland Cavaliers were the only teams over this 10-year span that almost never saw their win percentage fall after elimination. Both teams struggled mightily over this period however. Both teams struggles mostly came after the 1998 season, the Bulls mostly did so due to the retirement of Michael Jordan in 1998. The graphs below shows each teams win percentages, similar to the graphs for the teams above. A quick observation confirms that neither team consistently got worse after elimination. With their win percentages only falling after elimination three times between them over the 13 seasons they missed the playoffs. In the

season (98-99) where Cleveland did not winning any games after elimination they only had three games left to play.



Because both teams performed so poorly overall over this span they were still able to receive multiple draft picks in the top 3 to 5, especially the Chicago Bulls. However, both teams failed to turn these draft picks into consistent improvement until the tail end of this study. The Cavaliers were able to draft Lebron James with the 1st overall pick in 2003, a player who would

turn out to be the most dominant player in basketball over the next 13 years. The Bulls drafted Ben Gordon with the 3rd overall pick in 2004. Gordon was named 6th man of the year in his first season and was one of the team's leading scorers for years to come. After the drafting of Gordon the Bulls proceeded to make three straight playoff appearances.

The Bulls and the Cavaliers eventual success shows that tanking of this type is not the only way to ensure high draft picks. As both teams rarely got worse after elimination yet were both able to improve through the draft eventually. However, they do reiterate the importance of gaining high draft picks, something that they may have been able to do more consistently if they had engaged in tanking. They also show the importance of overall luck, as they the Cavaliers were able to the first overall pick the year LeBron James entered the draft, a once in a lifetime player.

Observations and Comparisons

In theory, gaining a high draft pick such as a top 3 or 5 pick should add substantially more wins than other picks. If you look at the bar graphs of the teams studied above who were identified as teams that possibly lost on purpose, there is a general trend of improvement in wins after these seasons, even if it did not result in playoffs, or championship contention. There are also instances of teams gaining high picks and failing to pick a player who would make any real impact, this suggests that teams not only need to draft better, such as Michael Olowokandi and Stromile Swift, but also work on player development, as we saw teams such as the Celtics trade away a future star (Billups) early without giving him a chance to develop properly. There is also of course an element of luck involved, as the Celtics found were able to draft Paul Pierce with the 10th pick, although this may have been helped by their tanking as they were able to move

above teams in the lottery with losses after elimination. The Warriors also tanked obviously in 01-02, and only received 5th pick, but it turned out to be a star in Jason Richardson, the following season they got the number 3 overall pick, and continued to improve to a playoff appearance in 2007, although their success was short lived after this. Teams also traded away picks for immediate talent in various instances, including the Steve Francis trade by the Grizzlies, as well as the Clippers trading their 2nd overall pick in 1995. The Clippers traded Brent Barry, after a few promising seasons. The Grizzlies traded a very good point guard in Mike Bibby after only three years. And, as mentioned above, the Celtics successfully drafted a star in 1997 with top 3 pick, in the form of Billups, who would go on to be a 5-time All-Star, and lead a team to an NBA title, traded him away, tie back into player development above. They also drafted Ron Mercer, who was a decent contributor at the NBA level and promptly traded him away after two seasons, for a more veteran, NBA ready player.

The Bulls and Cavaliers, on the other hand, rarely exhibited signs of tanking. Their overall poor performances season after season eventually allowed them to still land high draft picks and draft players who would improve their performances. It is extremely important to understand that there are other possible ways that a team could tank, so this data doesn't necessarily show that these two teams did not tank, but simply that they didn't tank in the manner we are looking at.

Conclusion

These results don't show any concrete conclusions that tanking is a definite answer for a team to necessarily compete in the NBA playoffs or for a championship, however they do show that when teams land that one star talent in the draft they were able to improve their fortunes; and

they gained these draft picks at least in part through tanking. And tanking, at the very least, can only help to improve a team's luck; the higher the draft picks the more likely you are to find a star. The NBA clearly has a competitive balance issue that most likely cannot be fixed through the draft alone; as noted earlier by the limited number of teams that have won a title. However, if losing to win helps your team improve, it seems difficult to attack this approach, even if it is not the most pleasing method to the masses.

The tanking teams studied show a fairly consistent trend of improving slightly following years of poor performance (often tanking years), before once again performing poorly. The graphs for each team confirm this as you can see their overall win percentage (denoted by the line), consistently increasing then decreasing over few year periods. As stated previously, this suggests, to some extent, that tanking does help teams improve, although not enough to make them competitive for the playoffs. This supports the conclusion suggested at the outset of the paper that good teams normally stay good and bad teams often stay bad, even when the bad teams improve it is not enough to overtake the teams above them. In the instances where the teams above did improve enough to have repeat playoff appearances it was due to them landing a star in the draft. The Celtics were able to draft Paul Pierce, while the Grizzlies were able to obtain Pau Gasol, two players who were perennial all stars from 2000 to 2010. Although the Cavaliers, who are a bit of an outlier because they managed to draft LeBron James (the greatest player of this generation), and Bulls were also able to improve and eventually make the playoffs by acquiring a star in the draft, even without signs of this type of tanking, it still shows the importance of gaining a star through the draft. Even if these two teams had no intention of tanking in any form at all it still supports the idea that being bad helps you eventually be good. This reiterates the importance of gaining that one star player, something that can be done through

gaining a top draft pick, and if tanking is able to increase a team's odds to gain a top draft pick, then it is a strategy that can help a team overall.

It is important to understand that tanking does not take place in the form of players not trying, or the coaches even in many cases. As coaches and players jobs rely on money. Tanking is a decision that is made by the front office executives. The paper above and other studies analyzing tanking discuss teams losing after they are out of playoff contention. This method of tanking most likely takes place through coaches being informed to simply not play their best players. Players who might contribute more wins are simply 'rested'. For a recent example, in 2015 with a few games left to play the Sacramento Kings made an announcements that its two leadings scorers would not participate in their final games due to 'health concerns' despite both being cleared of any injuries weeks ago.

The media and sports analysts alike have pointed to other forms of tanking that appear to take place, although these are much harder to analyze and prove. As noted earlier, both the Bulls and Cavaliers could easily have participated in other forms of tanking, such as trading away their top players and putting out a team that was consistently below par compared to the rest of the league. With this method a team sets out to perform poorly from the outset of the season so we would not necessarily see a decrease in win percentage after elimination. Teams that are in the middle of the pack and don't appear to be serious playoff contenders often trade away their best players in exchange for draft picks. This process gives the team more opportunities to gain talent in the draft while also making the team perform worse in the following regular seasons, which then leads to higher draft picks. This appears to something similar to what the Clippers did in the study on them above, as they traded away their younger players once they had them for a few years, in theory believing they were not good enough to compete, and deciding to rebuild again.

In the present day NBA this a strategy the 76ers have use and that their general manager has advocated; they have consistently developed their rookies before trading them away for more draft picks in an effort to increase their odds of landing that one superstar in the draft that all teams so desperately covet.

Overall, tanking has had a variety of causes and effects on the National Basketball association. Competitive Balance is certainly an issue in this league and this has been seen as the best method by some teams in order to overcome it. Although it is certainly not the end only method that can be used, teams also most likely have to combine this with free agent talent and effective drafting with later picks. Tanking is also something the fans clearly don't want to see, no one wants to root for a team that they perceive to be intentionally losing. Taylor and Trogdon (year) suggested that the system used from 1985-1989, where each team was given an equal chance to receive the 1st overall pick showed no signs of tanking, as teams had no incentive to play worse. However, this system was changed in an effort to increase competitive balance as teams that barely missed the playoffs were ending seasons with much higher picks than the teams at the bottom of the league. Teams in this study got high draft picks (whether through tanking or not) often improved, but never enough to win a championship, although Lebron and the Cavaliers did reach a final, suggesting that the draft process is not the answer to fixing the competitive balance issues in the NBA. These issues may lie elsewhere in the league, whether it be through the free agency system or it may be that the NBA will always be a league where few teams contend for the title year after year because of the luck of gaining that one superstar who can carry a team to title contention throughout an entire decade.

More in-depth research on teams benching their best players towards the end of the season when there is nothing to play for might provide insight onto whether or not tanking exists

on a greater scale. While, another study focus on front offices that make the decisions to tank before seasons even start would also offer another interesting point of view, although, admittedly this is much more difficult to dissect and prove.

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