

# Mapping Sports Fan Loyalty in the US

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## Abstract

Looking at sports fan loyalty has been done for years, mostly focusing on baseball in the MLB. Different factors are important to different researchers. Although there is not necessarily a correct way to judge which teams have the most loyal fans, my study has a unique approach to the subject. My research included the teams in both Major League Baseball (MLB) and in National Football League (NFL). By looking at factors such as home game attendance, stadium capacity, win percentage, and team rank based on revenue, fan base and for the NFL, apparel sales.

To create a “fan number” for each team, I took each individual factor and weighted them differently based on importance. After calculating the fan number, I mapped each of the teams using geographic information systems (GIS) software.

The results of my study show that there is somewhat of a correlation between area and a teams fan number. Areas that support their MLB team are also likely to support their NFL team.

## I. Literature Review

- Published in the Journal of Sports Economics, Michael Davis wrote on the subject of how a team’s success relates to fan attendance of games in the MLB. He included many variables in his study, including how competitive each game was (who the opponent was) and whether or not the game was an interleague game. His results support his theory that having a winning record does in fact increase attendance. This influenced my study because I connected a teams win percentage to their attendance. Having a winning record can have an effect on a teams’ fan base.
- Also published in the Journal of Sports Economics, Martin Schmidt and David Berri suggested that for fans, baseball has become more about winning than supporting “their team”. They determined that in general, it is necessary for a team to win in order to maintain their fan base nowadays. This would suggest that all teams that have a winning record would have a large, supportive fan base. In my study, I took into account attendance, along with winning record.
- Marilou Iokimidis in the National Journal of Sports Marketing and Sponsorship argues that good online marketing for a sports team should indicate that they have a more loyal fan base. Although she does show that having a useful and interactive website does play a role in the team’s overall marketing plan, she does not prove that a team’s online resources result in a change in their fans. This helped me decide not to include a teams’ online marketing success in my study of fan loyalty.

## II. Methodology

To start, I gathered data from teams in both the NFL and MLB. This data included average home game attendance (for multiple years, which was then averaged as a whole), stadium capacity, rank based on revenue, rank based on fan base, win percentage (over multiple years, which was then averaged), and for the NFL rank based on apparel sales (MLB sales were not available).

A more loyal fan is more likely to attend a game even if their team does not have a winning record. In order to show this relationship, I first calculated the average percent of the stadium that was filled (average attendance/stadium capacity= average % of stadium filled). Then I made a ratio combining the average % of stadium filled and the teams win percentage (average % of stadium filled/win %=adjusted attendance number). This number gives more credit to losing teams with high attendance than winning teams with high attendance or losing teams with low attendance. The last step was to put the adjusted attendance number on a 100 point scale.

I then converted the numbers into a usable format. To make everything uniform, all the data was converted to be on a 100 point scale. The ranking numbers were inverted refactored to a hundred-point scale so that top-ranking teams had the highest scores..

After getting all of my data into the same 100 point scale format, I created a formula to represent fan loyalty for the MLB and for the NFL. For the MLB the formula used was (.4\*adjusted attendance number)+(.3\*rank based on fan base)+(.3\*rank based on revenue)=fan number. For the NFL the formula used was (.5\*adjusted attendance number)+(.2\*rank based on fan base)+(.2\*rank based on apparel sales)+(.1\*rank based on revenue)=fan number. These formulas were created in order to give different weights to the data. The fan number is the overall score for fan loyalty I gave to each team.

## IV. Results and Discussion

Figure 1 MLB Fan Number

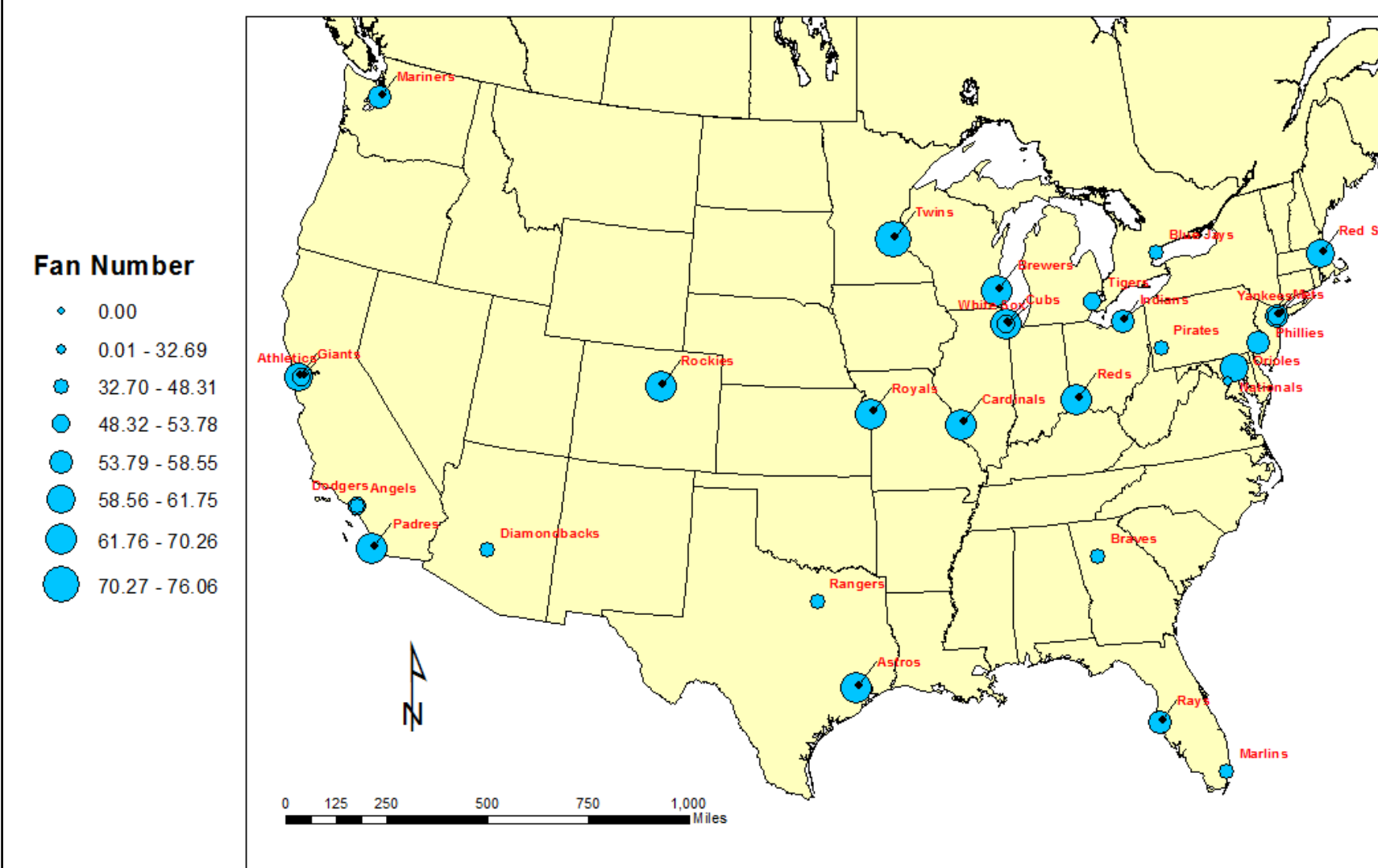


Figure 3 MLB Average % Stadium Filled

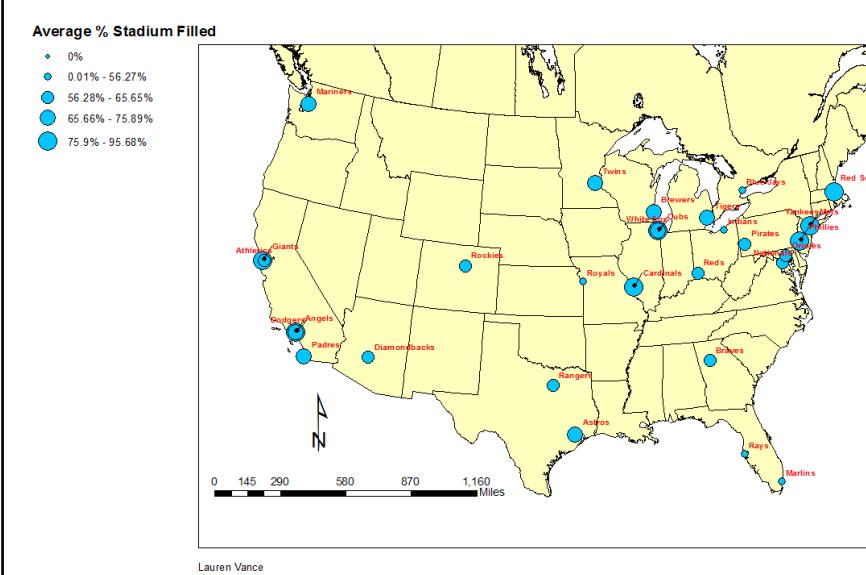


Figure 4 NFL Average % Stadium Filled

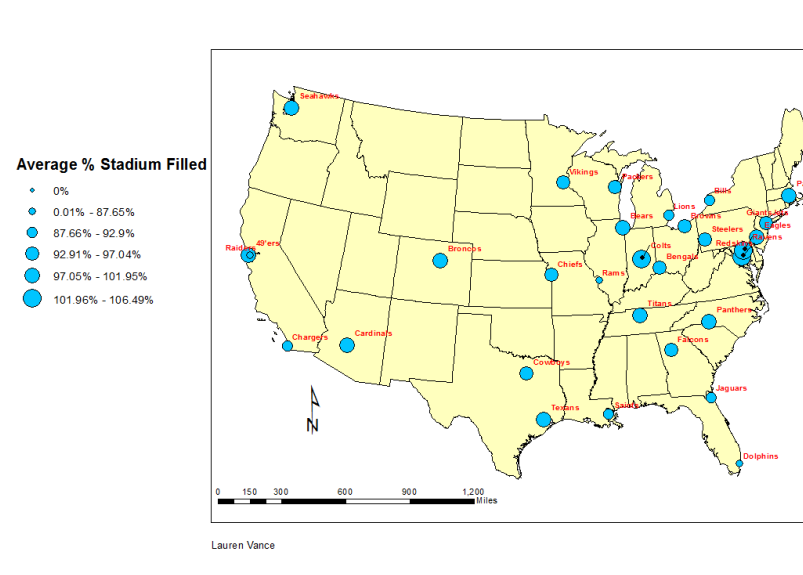


Figure 2 NFL Fan Number

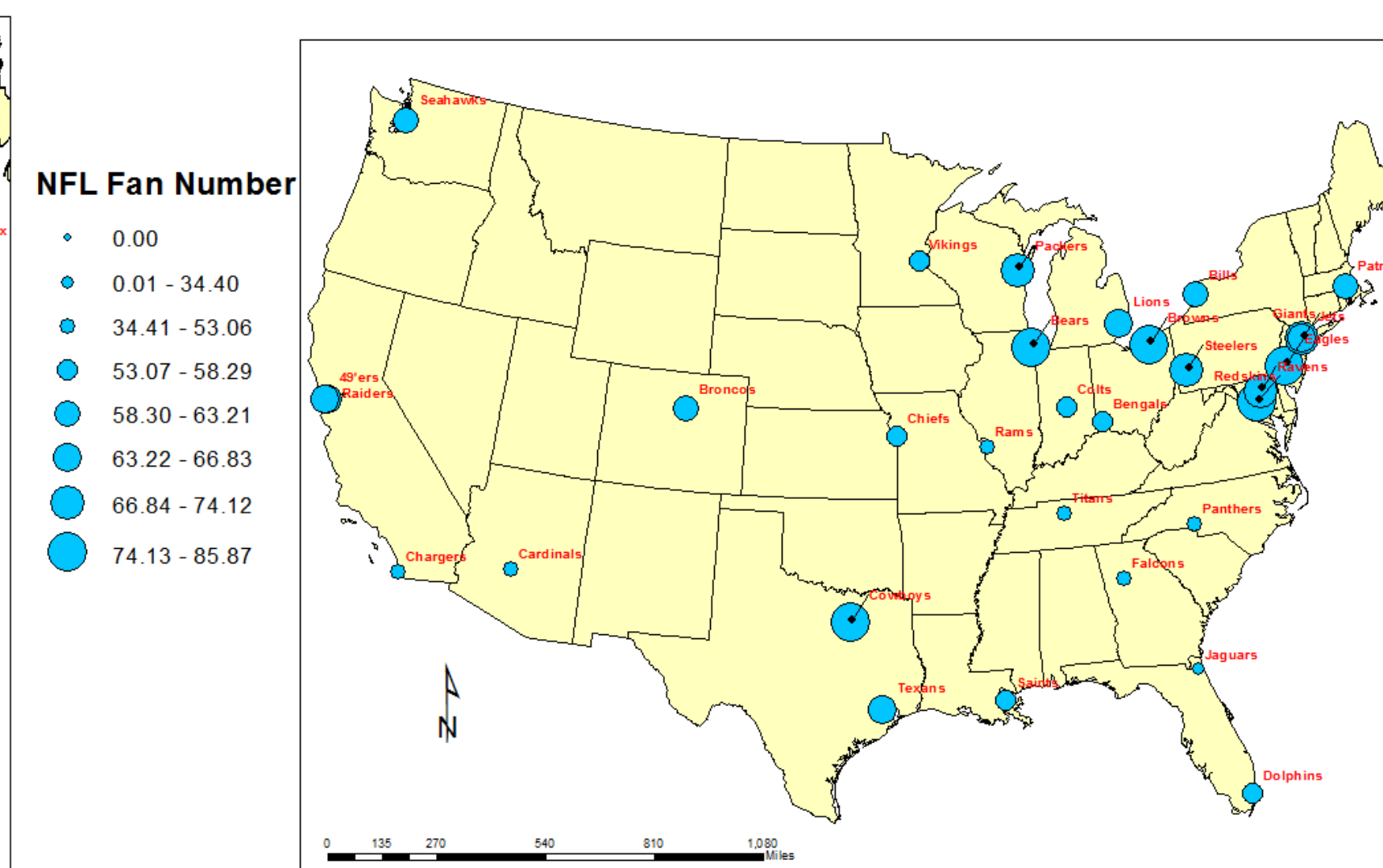


Figure 5 MLB Average Win Percentage

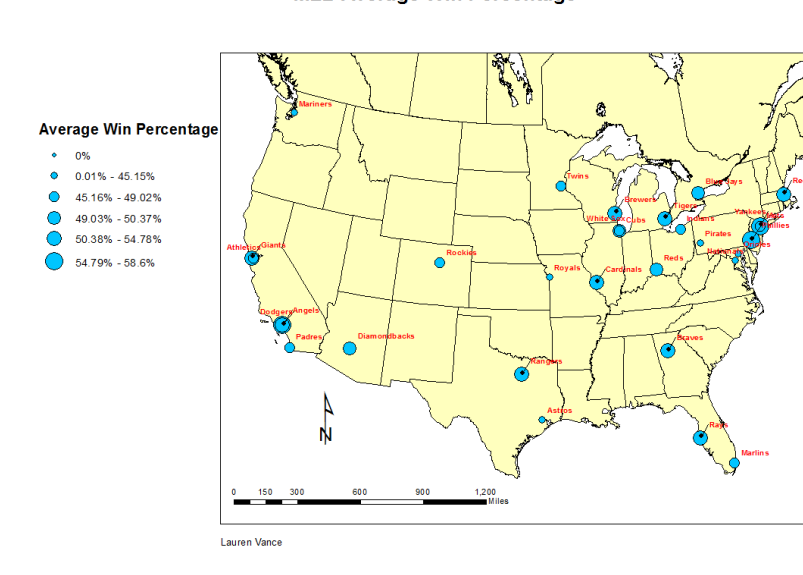
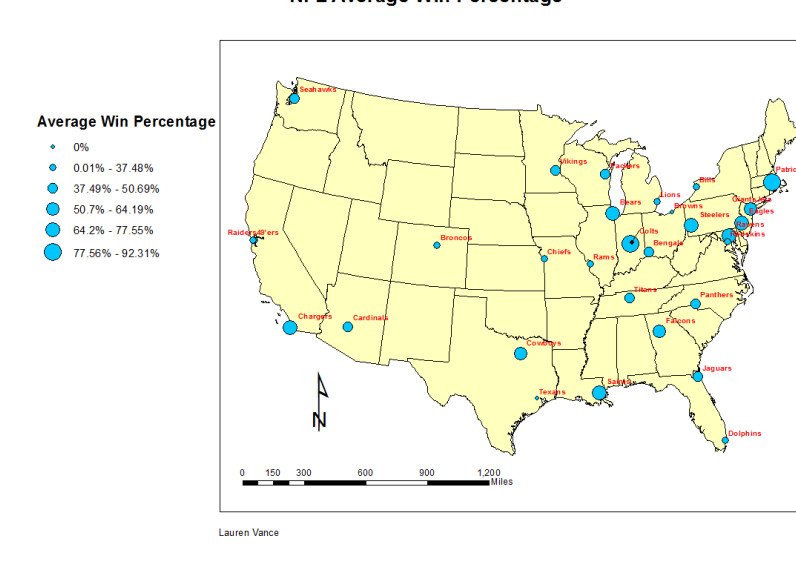


Figure 6 NFL Average Win Percentage



## III. Figures

- Fig 1 depicts fan number for each team in the MLB. The bigger the circle, the more loyal the fans for the team are.
- Fig 2 shows fan number representation for the NFL.
- Fig 3 and 4 map one of the factors I considered in the overall fan number. It shows the average percent of each stadium filled for each team in the MLB.
- Fig 5 and 6 also show an individual factor considered when calculating a fan number. The teams average win percentage over a number of seasons is shown for each the MLB and NFL.

## IV. Conclusion

Overall, the teams with the lowest fan loyalty for the MLB seem to be located in the southeast, with the Miami Marlins having the lowest fan number. The MLB teams that have the highest fan number and therefore the most loyal fans are all located in the North, with the St. Louis Cardinals leading the MLB. As for the NFL, the teams with low fan numbers were spread throughout the United States, with the Jacksonville Jaguars having the lowest fan number. Football teams in the Northeast have the most loyal fans, with the Philadelphia Eagles having the highest fan number.

Each individual factors maps differently than the overall fan number. The fan number does not directly correlate with any of the data used to calculate it. If only win percentage was taken into account, the Miami Marlins would still be in last place, but the New York Yankees would have the most loyal fans in the MLB. In the NFL, the Detroit Lions would fall to last place and the Cleveland Browns would take over the top spot.

Based on these observations, there are many factors that effect the amount of loyalty that fans have. Winning alone does not mean that a team will have supportive fans. Along the same lines, a team can still have loyal fans even if they do not have a winning record.

Although the correlation between teams being in the same area and having a similar fan number is not strong, there is somewhat of a relationship. There is also somewhat of a correlation between an NFL team and an MLB team in the same area both having a similar amount of fan support.

## V. Future Research

Future research could include different variables. Some of these could include the number of season ticket holders for each team, the amount of revenue from TV each team receives and the amount of revenue from licensed product sales each team receives.

The research could also include data from different sports such as hockey, soccer, and basketball. Including different sports would give more of an overall view to which cities actually support all of their sports teams the most.

Another interesting factor would be looking at how consistent a team’s fan base is over time.

## VI. References

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## VII. Acknowledgements

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