

Executive Summary: Twitter Analysis of Non-Wisconsin Based Packer Fans

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The Green Bay Packers are, of course, incredibly popular in Wisconsin, and the Packer brand is easy to promote and market within the state. But the Packers are more than just a Wisconsin brand. They are at least a national, if not a global, brand. Outside of Wisconsin, where are most Packer fans located? Knowing this could help target marketing focus and dollars to locations that would have a bigger impact.

Using the Twitter REST API, I set out to try to answer this question based on the location of users tweeting about the Packers other than those in Wisconsin. I chose the hashtags #gopackgo, #packers, #greenbaypackers, #packernation, and #greenandgold to collect tweets. These allow for a broad range of packer related tweets, and encompass tweets with positive and negative sentiment. Data was collected between Sunday December, 1 and Tuesday December, 10. I focused on original tweets only since that would more likely indicate a fan than a retweet. I used the user's location from their profile. If that couldn't be found, I used the location attached to the tweet. I focused only on locations within the 50 US states in order to simplify the analysis. This could be expanded to identify additional US and international places with high positive tweet volume.

The hypothesis I was interested in was whether more positive tweets come from states that don't have an NFL team, under the premise that those locations don't already have a "default" team association. In order to complete this analysis, I needed to identify whether each state had or didn't have an NFL team. I used a list from <https://state.1keydata.com/nfl-teams-by-state.php> to assemble this information. There are 28 states (56%) with an NFL team and 22 (44%) states without. I also performed sentiment analysis on the tweet text, and only retained tweets with positive or negative sentiment, excluding those with neutral sentiment. This became the Fan Sentiment data, indicating if the tweet was likely from a fan (positive sentiment) or a foe (negative sentiment).

This resulted in 2,861 tweets to use in further analysis. Figure 1 shows the top 10 states by tweet volume, with Fan Sentiment for each. Illinois had the highest tweet volume, which on the surface could be explained by virtue of the Packers biggest rival, the Chicago Bears, being in Illinois. Interestingly, they had a higher volume of positive tweets than negative. Of the top 10 states, only 1 didn't have an NFL team, Nevada, and they were all negative. While this initial analysis is starting to lead to the conclusion that my hypothesis is not correct, I wanted to see what a more statistical level of analysis would say as well.

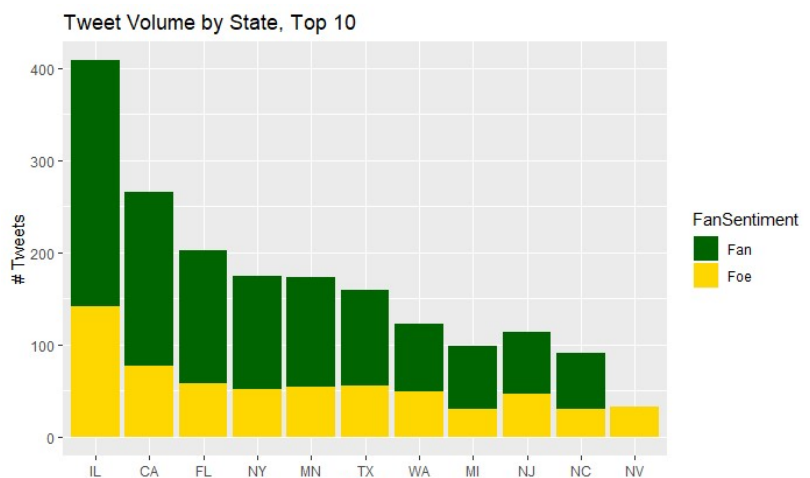


Figure 1

Testing for an association between being a Packer fan or foe and being in a state with or without an NFL team, using a chi-square test of independence, there does not appear to be a relationship between tweet sentiment and NFL team presence ($p\text{-value} = 0.8311$; above the .05 significance level). Since I also had information about how many NFL teams each state had, I was curious if there was an association with number of teams. I ran the same test using number of teams and obtained similar results. There does not appear to be a relationship between tweet sentiment and the number of NFL teams has either ($p\text{-value} = 0.5521$; above the .05 significance level). Figures 2 and 3 show Fan Sentiment by each of these sets of categories.

While these results did not support my hypothesis, I feel there would be value in the method of collection and analysis perhaps at an individual location level in order to better understand specific locations penchant for being a Packer fan or foe.

