

Examining Which Statistics Have the Most Impact on NFL Success

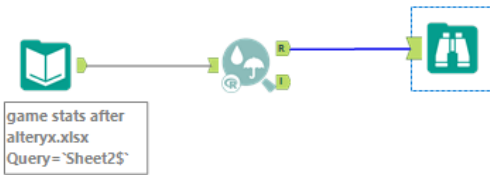
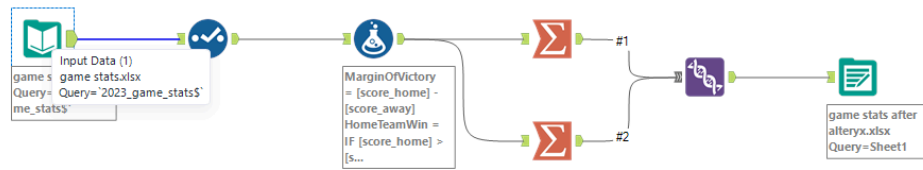
My goal for this project was to examine an NFL dataset that included game statistics and play by play statistics, and try to figure out which areas of the game had the most correlation with team and offensive success. Once I was confident in the dataset, I transferred the data to Alteryx and performed several steps to clean up the data and join the two excel files (game stats and play by play stats) together.

Once this was complete, I performed a correlation analysis in Alteryx targeting point differential. The variables I used in the model were total first downs, third down conversion rate, total penalty yards, redzone conversion rate, and total defensive and special teams touchdowns. I chose these specific variables, because they are often used in talking points discussing NFL success. The Pearson correlation showed that total first downs had the strongest positive correlation with point differential, with an association analysis value of 0.748.

Next I aimed to answer a more specific question of whether passing more on first down leads to more offensive success. To do this, I calculated a percentage for passing on first down for each team. I then compared that with total points scored using Tableau. The result showed that there was actually a negative correlation between passing on first down and offensive success, proving my initial hypothesis wrong.

I then wanted to know whether teams who threw more deep passes generally had more offensive efficiency. I calculated the teams percentage of plays that were passes and compared this to total points scored in Tableau. The two had a positive correlation.

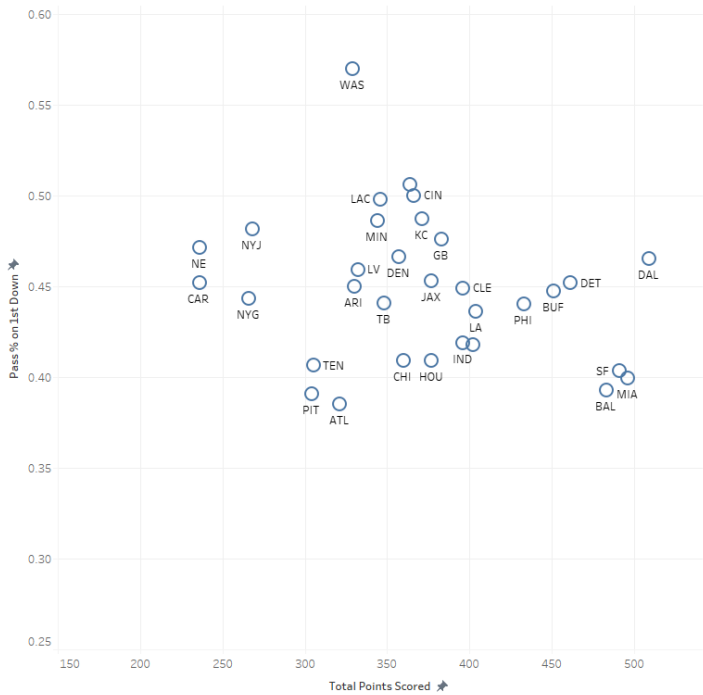
Overall, I found my comparisons and correlations interesting. I was surprised by the results of the 1st down pass rate correlation, but the other results turned out as I expected. In conclusion, total first downs are most correlated with team margin of victory. Also passing on first down is not an indicator of offensive success, while attempting more deep passes is.



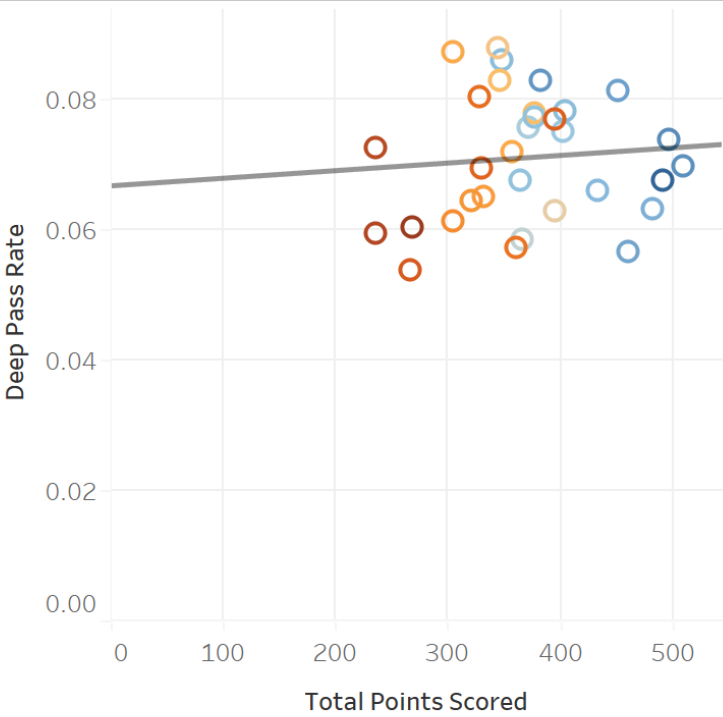
The image displays two stacked bar charts for 32 NFL teams. The top chart, titled 'Point Differential', shows the difference in points scored and allowed, with values ranging from approximately -190 to 200. The bottom chart, titled 'Total First Downs', shows the total number of first downs, with values ranging from approximately 260 to 380. The teams are listed on the x-axis, ordered by their point differential from lowest to highest.

Team	Point Differential	Total First Downs
Commanders	-190	320
Panthers	-180	300
Giants	-140	265
Patriots	-130	260
Cardinals	-125	330
Jets	-85	260
Titans	-60	300
Broncos	-55	300
Chargers	-50	320
Falcons	-50	325
Seahawks	-30	315
Steelers	-10	290
Bears	-5	320
Colts	-10	325
Bengals	-10	330
Vikings	-10	340
Raiders	-5	295
Eagles	5	375
Jaguars	5	340
Buccaners	20	300
Texans	25	330
Rams	25	350
Packers	30	330
Browns	35	325
Lions	65	375
Saints	75	340
Chiefs	80	350
Dolphins	105	360
Bills	140	380
49ers	195	380
Cowboys	195	385
Ravens	200	360

Pass % on First Down vs Offensive Success



Deep Pass Rate vs Total Points Scored



SUM(EPA/ Pass)

-0.3000

0.2700