

Surplus Value by Position Group

A proof-of-concept project for understanding the net surplus value of each position group for all 32 NFL teams.

Overview

1. The Vision
2. The Workflow
3. The proof-of-concept

The Loser's Curse: Decision Making and Market Efficiency in the National Football League Draft

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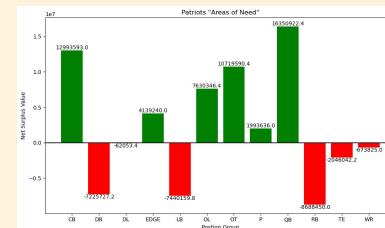
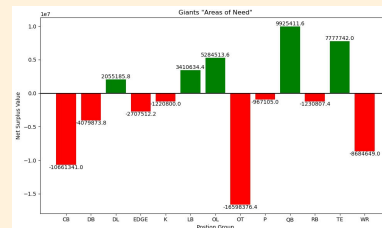
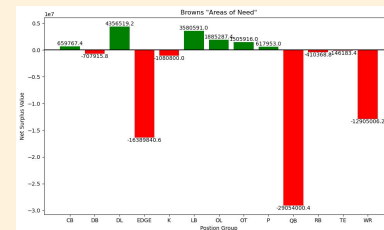
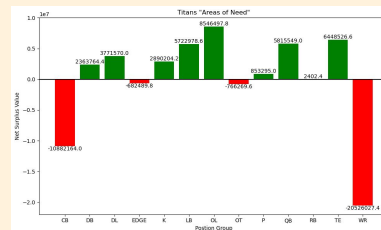
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*Motivated by the Loser's Curse paper!

The Vision

A dashboard outlining estimates of each team's greatest area of need on draft night could be updated as each pick comes in to understand each team's context as their turn to pick approaches. This dashboard could also be used to identify teams that could be considering players in free agency that the Ravens are also interested in.

First Four on the Clock



The Workflow

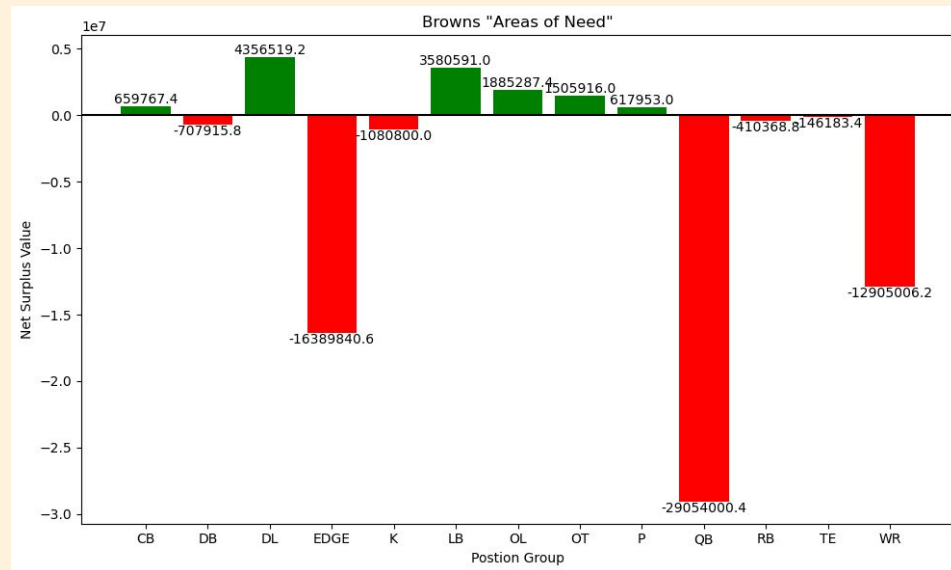
Player Salary

- To simplify the value definition, I used Annual Per Year (APY) from contracts updated to June 2025.
- I identify if players are on their rookie deals or are on their first contract after going undrafted and exclude these players in the training set. This way, performance value is only mapped to salary value of a veteran replacement.

Performance

- While there are a variety of ways to estimate performance value for each position group, I rely on 2024 madden ratings for the easiest and simplest estimation of value.
- The idea is that I could iterate over several more advanced methods of estimating player performance using various data sources to improve the overall performance value estimation.

The Proof-of-Concept



- For all players on 31 teams, train a KNN regressor to predict salary based on their madden ratings (if they are not on their rookie contract).
- For all the players on the 32nd team, use the model to obtain their predicted salary.
- Subtract their predicted salary from their actual salary to obtain surplus value estimates for each player
- Calculate the net surplus value (NSV) for each position group for that team.
- Repeat for all 32 teams.
- Plot the results to identify largest areas of need for each team!