Distance Denied: How to Rate Offensive Linemen on Pass Plays

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Context - Why this project?

Business Cases:

1. The NFL hosts a competition called the Big Data Bowl.
   a. 2023 challenge: Winners are offered cash prize for creating metrics to help evaluate offensive linemen on pass plays
2. Provide insights and partner with NFL organizations (individual clubs or analytic groups) to assist with challenges in evaluating offensive linemen.

How are Offensive Linemen Currently Graded?

- PFF - Reputable sports analytic company focusing on the NFL
- Focus on "wins for defensive linemen and avoiding losses for offensive linemen."
- Point system
    - D-lineman: receives fraction of a negative
    - O-lineman receives fraction of a positive.
    - Depends on sack, hit, etc.

Distance Denied to the Passer

- What is it?
  - How much space the blocker allowed the passer to have
  - How much space the pass rusher was denied
- Benefits:
  - Measurable
  - Does not rely on subjective point scale
- How is it measured?
  - If O-lineman blocks during the play, then take distance between him and the passer when the ball is passed
  - Other cases…

Data Used for this Project

- Game data: teams playing in each game
- Play data: play-level information from each game
- Player data: player-level information
- PFF Scouting data: player-level scouting information for each game and play
- Tracking data: player tracking data from season [week] such as speed, acceleration, and distance travelled
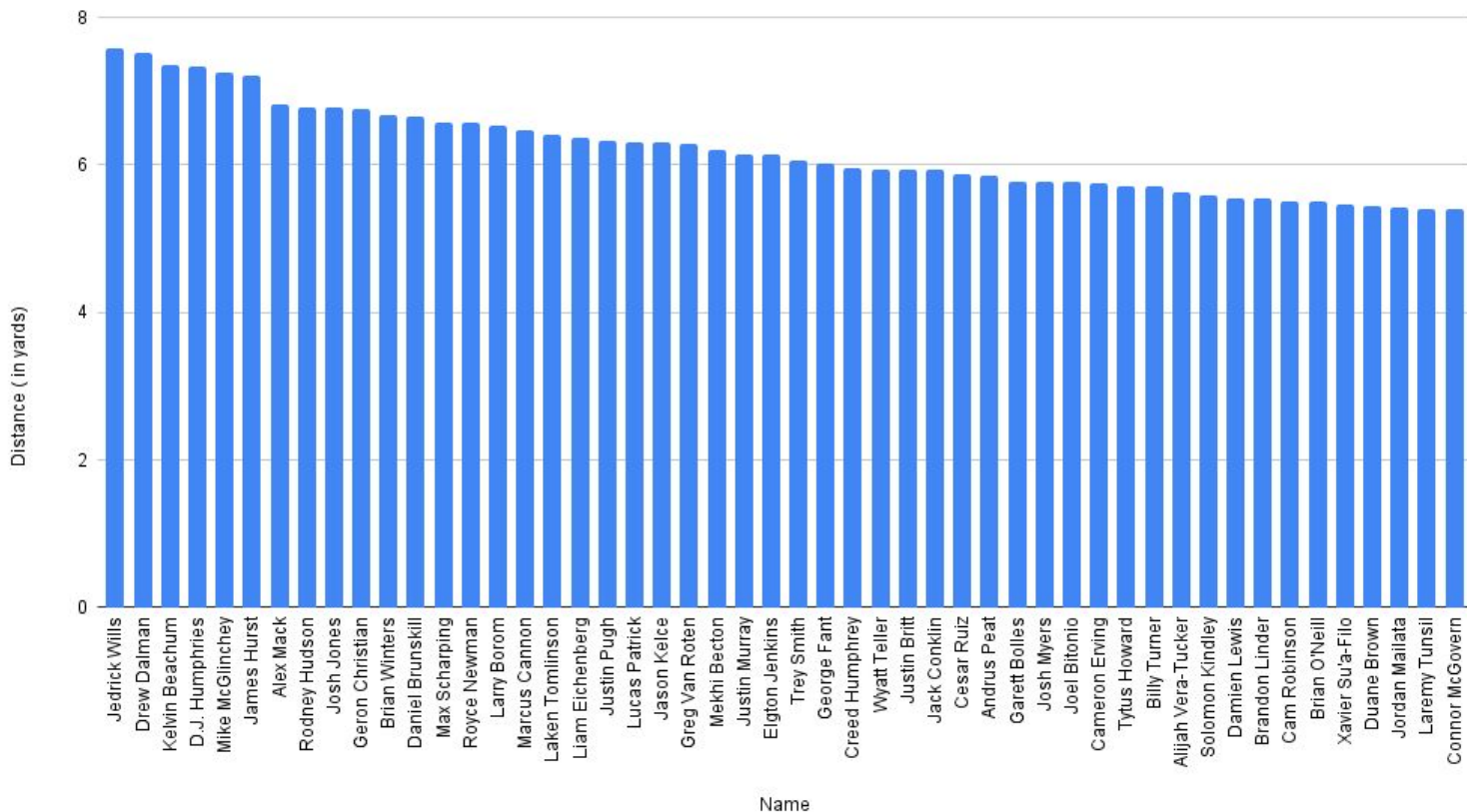   - 1M+ data points per each week

Methods

- Google Sheets
  - Filtering
  - Cleaning
  - Plotting
- R (programming language)
  - Merge data tables
  - Cleaning
  - Calculate distance denied to the passer
  - Other logical arguments, functions, calculations, etc.

Results

- Week 1
- Top 50 players
- Highest ~ 7.6 yds

Average Distance Denied to Passer by Offensive Linemen Per Play Week 1

Distance (in yards)

Name

Conclusions & Further Recommendations

- Average Distance Denied to the Passer Per Play
  - Offers a measurable, data-driven method for evaluating offensive linemen
  - Easily rank offensive linemen and aggregate across the season, different teams, positions, and other parameters.
- Further recommendations:
  - Aggregate across the whole season for 2022
  - Cross validate this metric with other metrics and offensive linemen performance

Contact Methods & Applicable Links

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- GitHub: https://github.com/samoliver3
- Medium: https://medium.com/@samoliver3
- The repository for this project: https://github.com/samoliver3/NFL_BDB_2023