

# Investing In the Trenches:

The Impact of offensive line and salary investment on offensive efficiency

## Hypothesis

NFL teams that allocate a higher percentage of their salary cap and draft capital to offensive linemen will have a better offensive efficiency.

## Mutlitrple Linear Regression

$$Y = \beta_0 + \beta_1 \cdot \text{olCapPCT} + \beta_2 \cdot \text{olDraftPCT} + \varepsilon$$

where  $Y$  represents different offensive efficiency outcomes:

- Receiving EPA (effectiveness of passing game)
- Rushing EPA (effectiveness of run game)
- Sacks Suffered (offensive line pass protection)

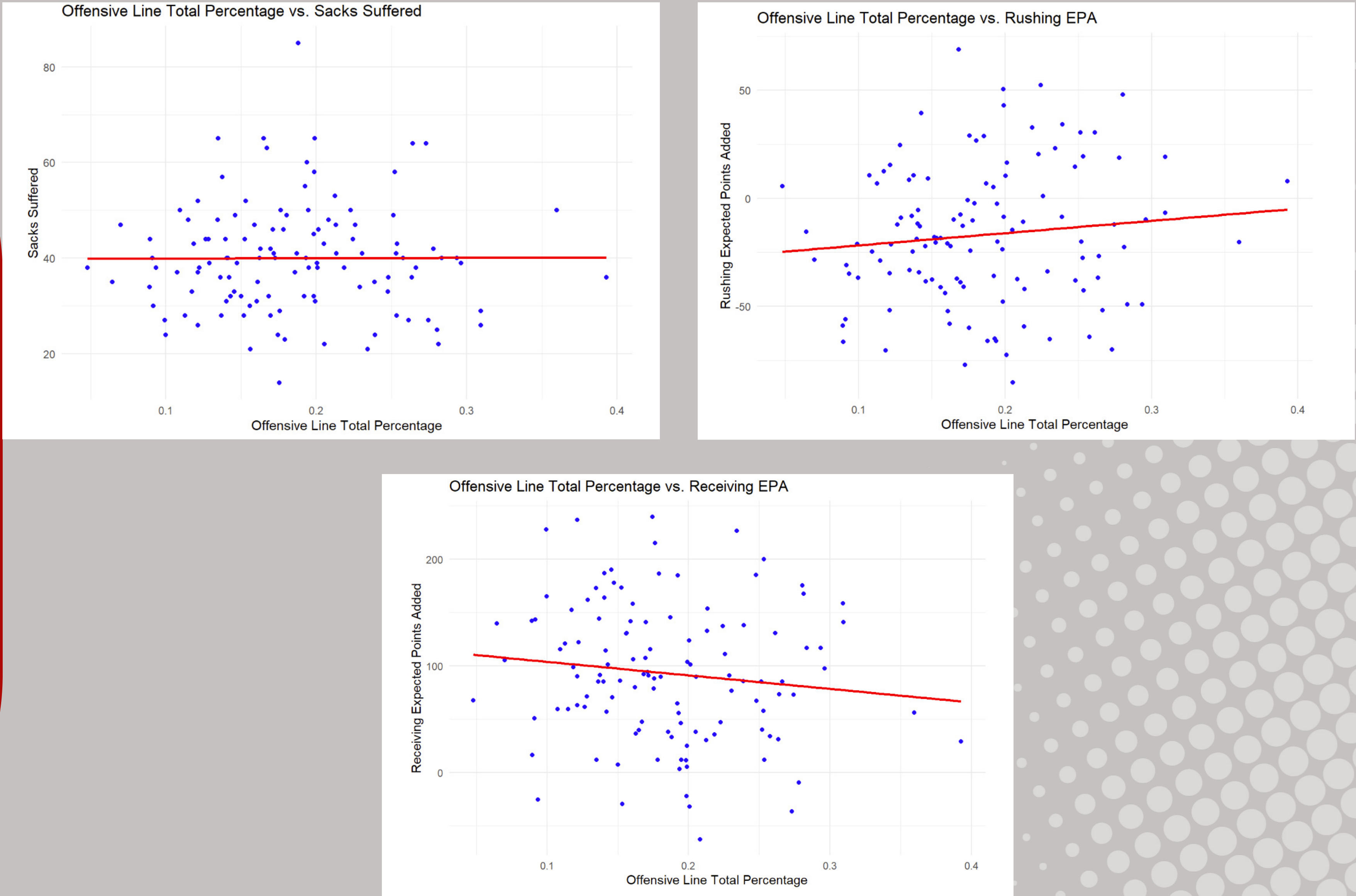
## Data Description

**OLCapPCT**- Percentage of each teams' allocation to the offensive line based on their total cap spending  
**olDraftPCT**- Percentage of each teams' allocation to the offensive line in the draft.

## Summary Statistics

season	Mean OL Cap Percentage	SD	Mean OL Draft Capital Percentage	sd	Mean rushing epa
2020	0.1865484	0.0366192	0.1948276	0.1322503	-11.86835
2021	0.1882188	0.0415055	0.1846667	0.1080783	-15.50375
2022	0.1798806	0.0406540	0.1853333	0.1386321	-13.02628
2023	0.1850129	0.0404289	0.1723333	0.1179036	-28.04267

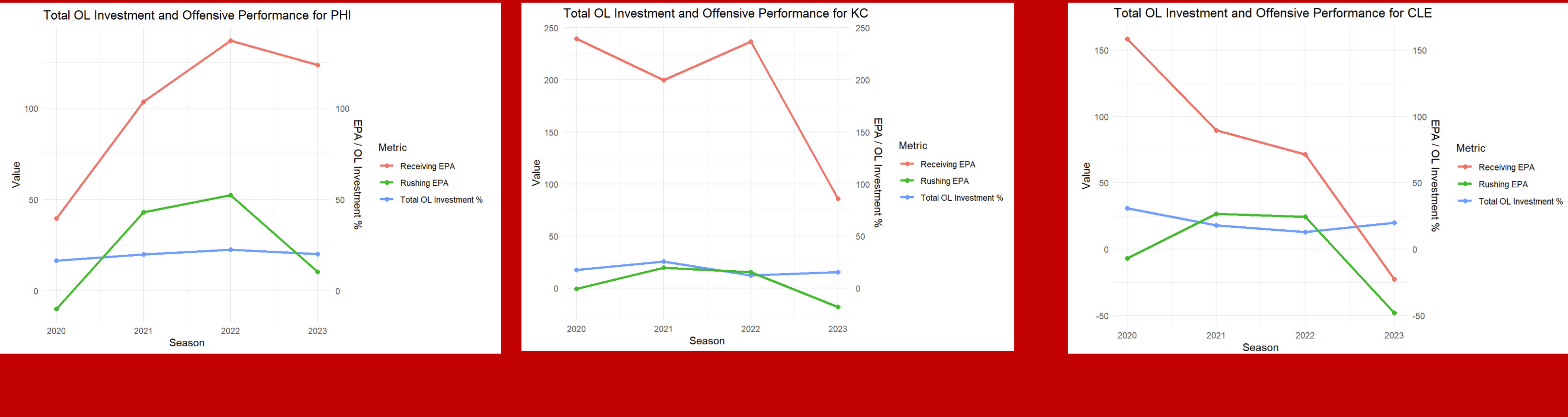
season	sd rush	Mean sacks suffered	sd sacks	Mean receiving epa	sd recieving
2020	29.88267	11.164415	11.164415	116.39793	63.50736
2021	29.93812	9.186824	9.186824	99.84792	64.67174
2022	32.90124	10.441803	10.441803	83.87860	58.29848
2023	30.54841	12.983706	12.983706	84.38755	65.71570



## Time Series

### Data Collection

Efficiency Metrics: NFLVerse  
Salary Data: Spotrac  
Draft Capital: Manual-(Over the Cap)



## Conclusion

After completing this project, I found inconclusive evidence regarding the impact of offensive line investment on offensive efficiency. In all three models, neither salary nor draft capital was statistically significant, and the graphs showed little to no association with the selected efficiency metrics. Similar patterns emerged when analyzing specific teams and time series trends. In the future, incorporating controls for quarterback performance and injuries could provide more conclusive insights.