- Main Questions:
  - What positions have been drafted better than others since 2012?
  - If we were to add/remove drills at the Combine, which positions should we prioritize?

- What defines a successful player in the NFL?
  - How much they play?
    - E.g. games started, snap counts
  - Award-based metrics?
    - E.g. Pro Bowl/All-Pro selections
  - Performance-based metrics?
    - E.g. Pro Football Focus Grades

- Chosen metric:
  - Madden Ratings

MADDEN RATINGS

- Which year(s) should be used as the success metric?
  - Madden Ratings are set before season starts
  - Rookie year Madden Rating is not based on any performance in the NFL
  - Second year Madden Rating is based solely on rookie year performance which isn't always indicative of success
  - One good year doesn't equal success
  - Combination of years after second year seems appropriate

- Metric: use average of Madden Ratings in 3rd-5th year
  - Will include players drafted 2012-20
  - Also include players drafted 2021, taking average of 3rd and 4th years (adds sample size)

**Mean Difference in Madden Ratings from Previous Year**
WRs Drafted from 2012−2023
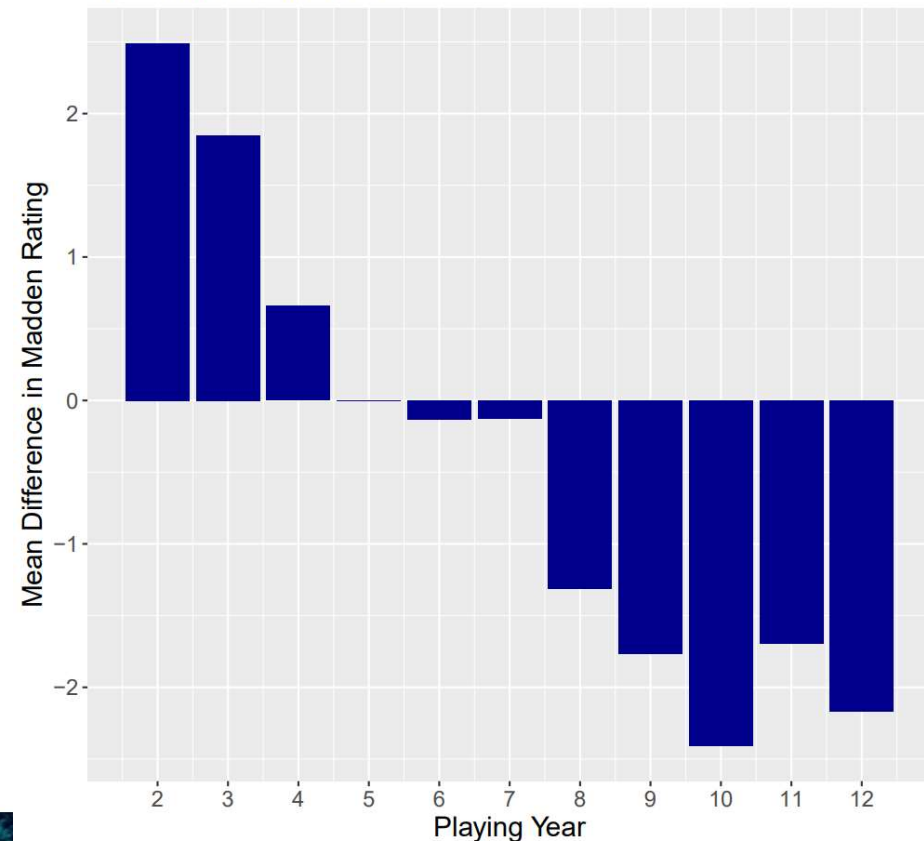
- Issues:
  - Not every player has a Madden Rating for given season
  - Madden Ratings don't account for how much a player is "Active"
- Solution:
  - Label every player for every season as
    - "Practice Squad/Non-Rostered" if they spend at least half the season with this status
    - Else "Active"
  - For "Active" player-seasons with missing Madden Ratings (n=61)
    - Impute with 50th percentile of Practice Squad/Non-Rostered Madden Ratings at position
  - For all "Practice Squad/Non-Rostered" player-seasons (n=2487)

Madden Ratings Histogram by Season Roster Type
WRs Drafted 2012–2023

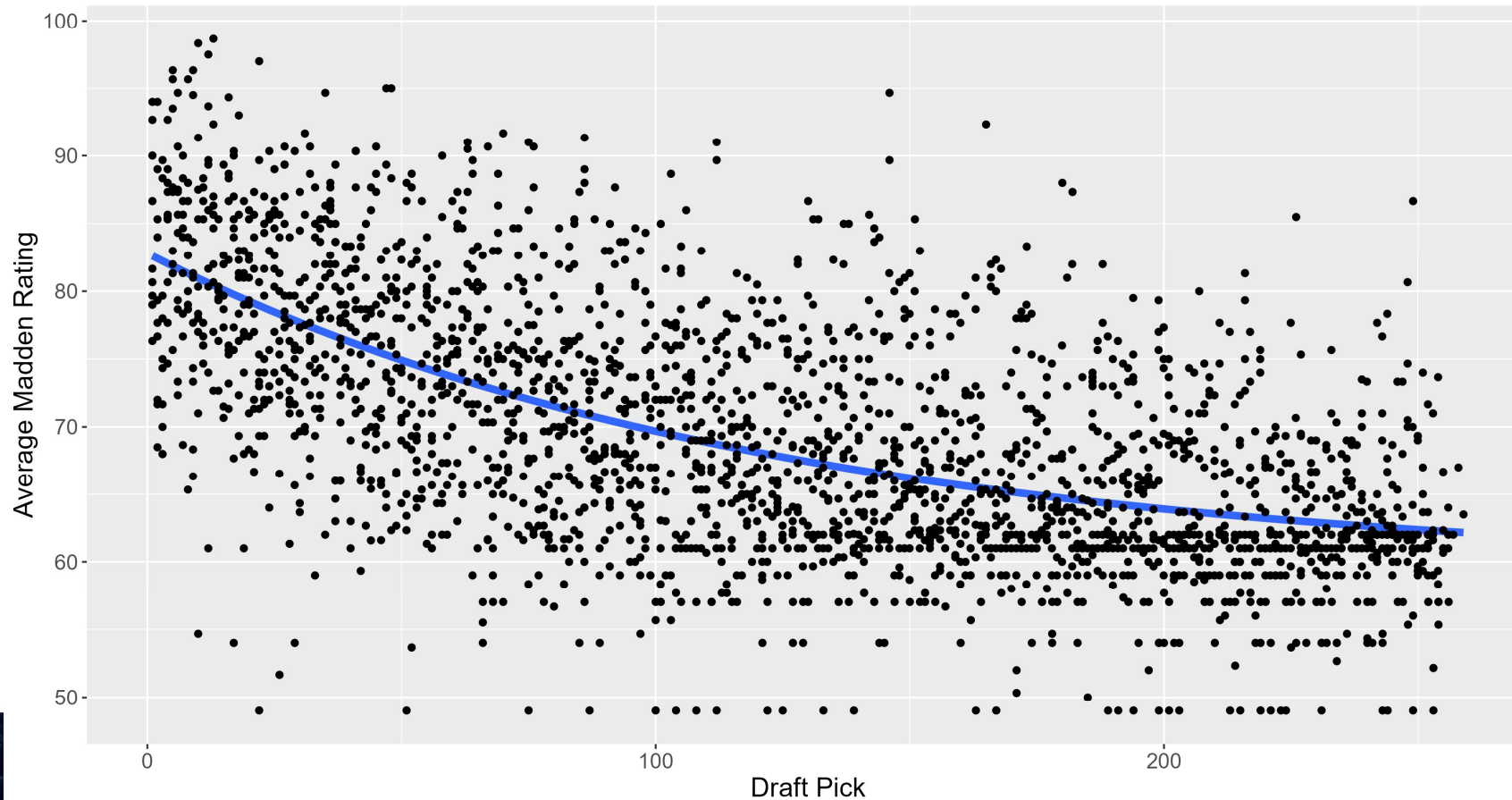| % of Games listed as "PS/Non-Rostered"	Percentile Imputed With
50%	25th Percentile
51-75%	15th Percentile
76-100%	5th Percentile
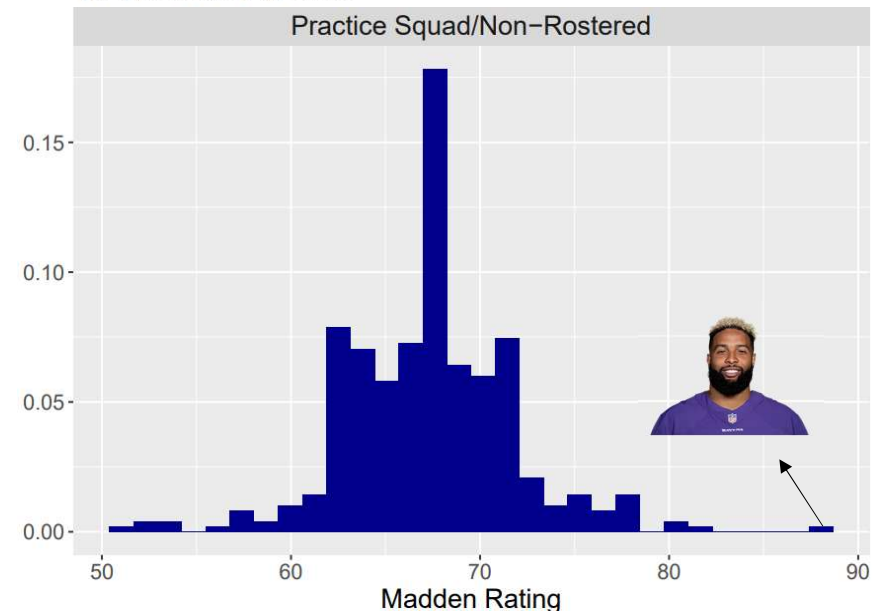
FOOTBALL OPERATIONS

Draft Curve for Average Madden Rating in Years 3-5 vs. Draft Pick

All Offensive/Defensive Players Drafted 2012-21

Plot each player drafted from 2012-21 at their x-y coordinate of Draft Pick and Average Madden Rating

Add a curve of best fit using exponential model
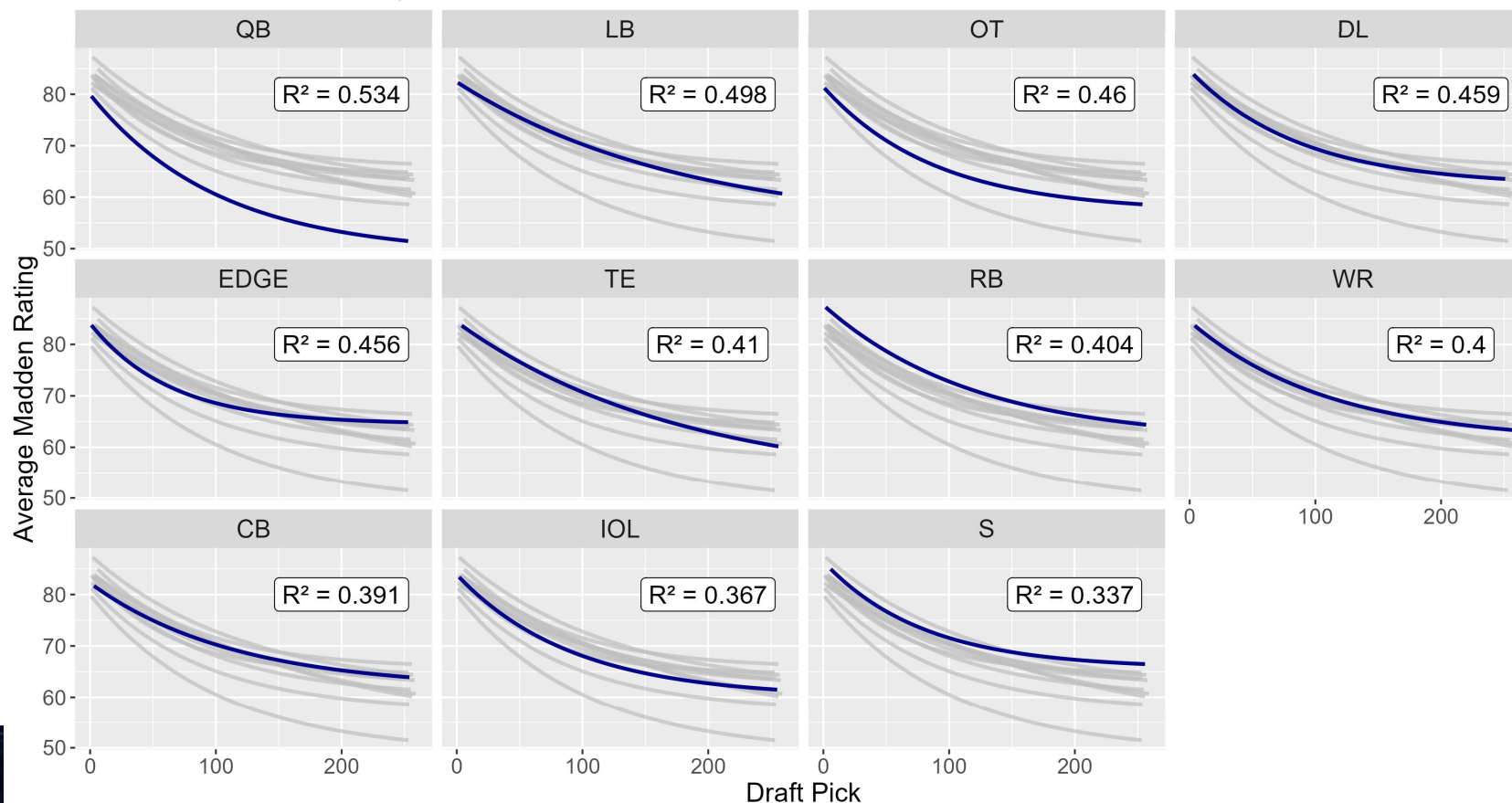
Compute model R-Squared

Draft Curves for Average Madden Rating in Years 3-5 vs. Draft Pick by Position
All Offensive/Defensive Players Drafted 2012-21

R-Squared tells us how consistently the position has been drafted

I.e., are the top players drafted early and the worst players drafted late

QB — $R^2 = 0.534$

LB — $R^2 = 0.498$

OT — $R^2 = 0.46$

DL — $R^2 = 0.459$

EDGE — $R^2 = 0.456$

TE — $R^2 = 0.41$

RB — $R^2 = 0.404$

WR — $R^2 = 0.4$

CB — $R^2 = 0.391$

IOL — $R^2 = 0.367$

S — $R^2 = 0.337$

Average Madden Rating

Draft Pick

Kendall's Tau between Average Madden Rating in Years 3−5 and Draft Positional Rank
Draft Years 2012−21
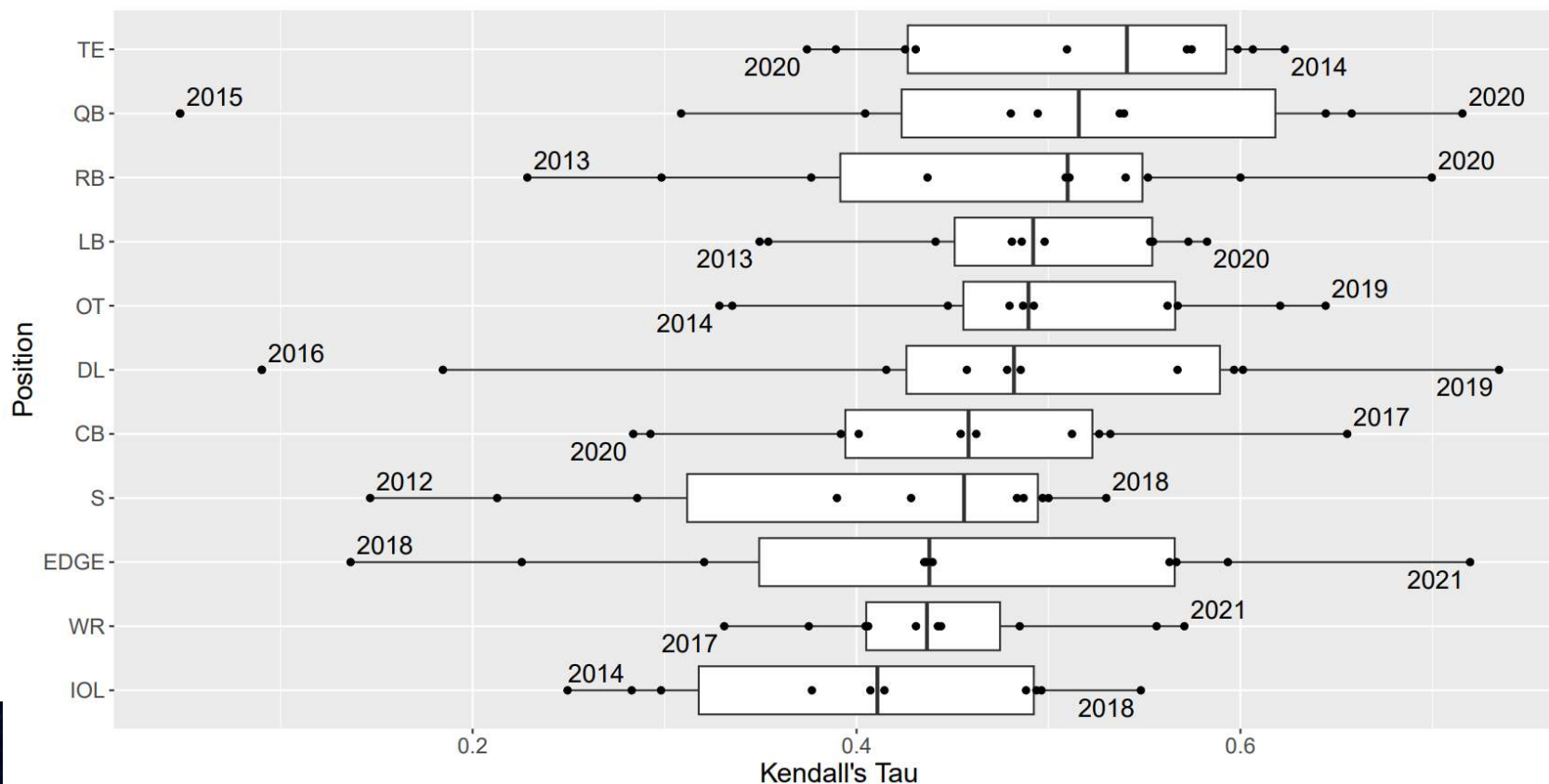
Each dot represents a positional draft class

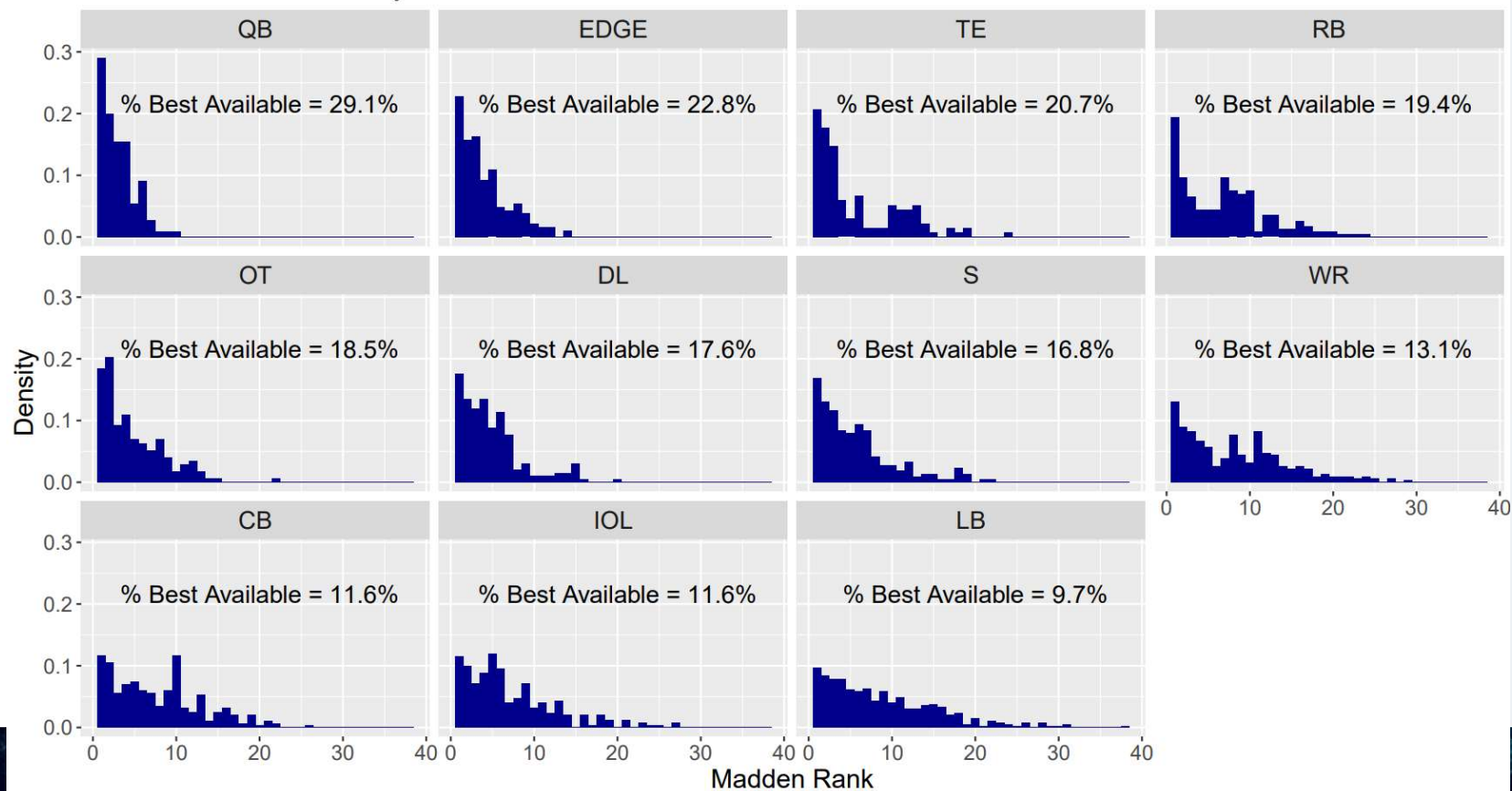Kendall's Tau tells us how well the position was drafted in order that year

I.e., was the best WR taken first, second-best WR taken second, etc.

BEST AVAILABLE

Madden Ranking of Drafted Player out of Available Players at Position
All Offensive/Defensive Players Drafted 2012–21

How often has top remaining talent been identified at each position?
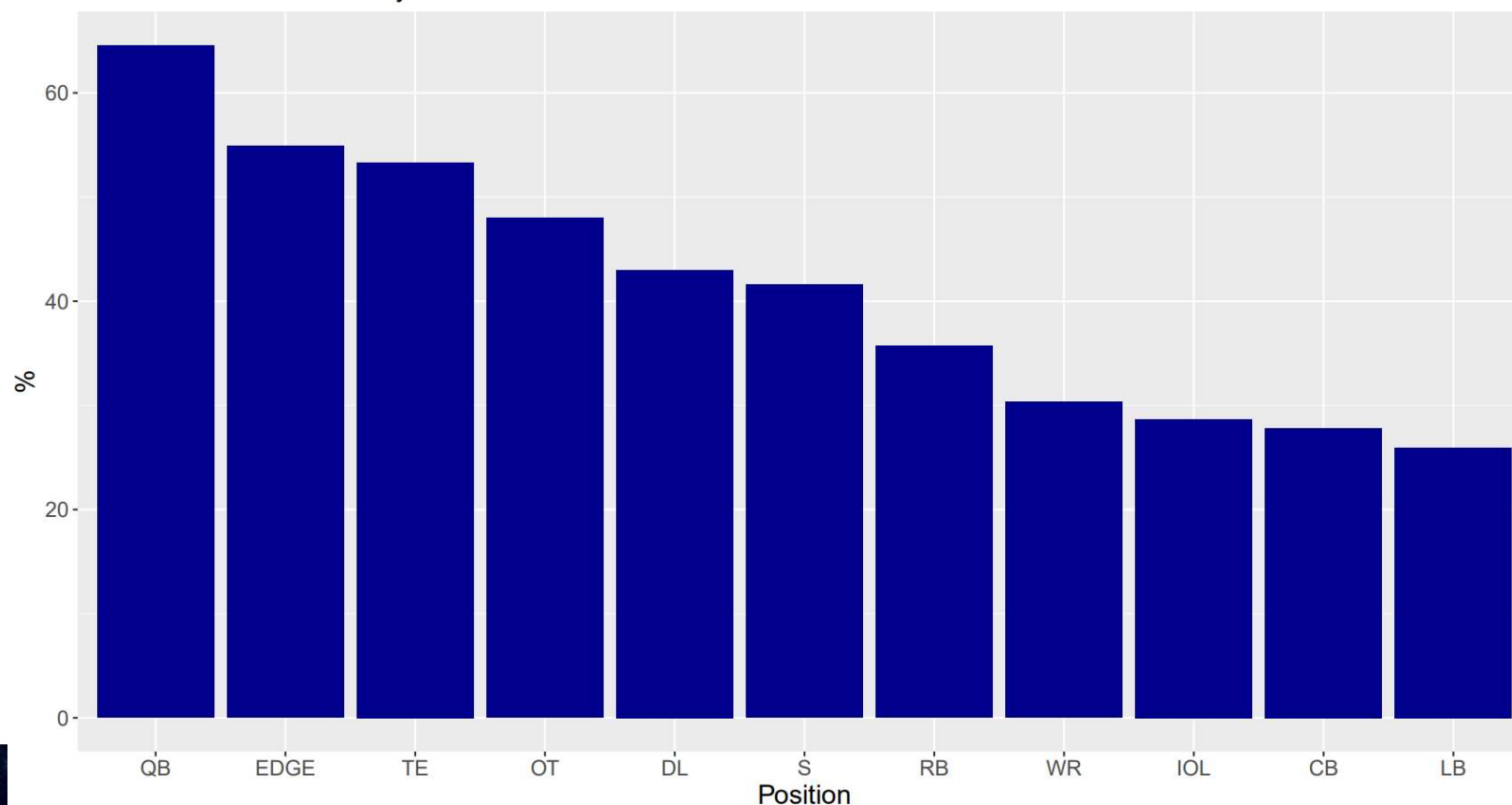
Binary nature of metric can create some bias

How Often a Top 3 Available Player is Selected at the Position
All Offensive/Defensive Players Drafted 2012–21

Adds more flexibility/lenience

Accounts for OT where 2nd best available frequently selected

Accounts for RB where drop-off between % best available and % 2nd best available is large

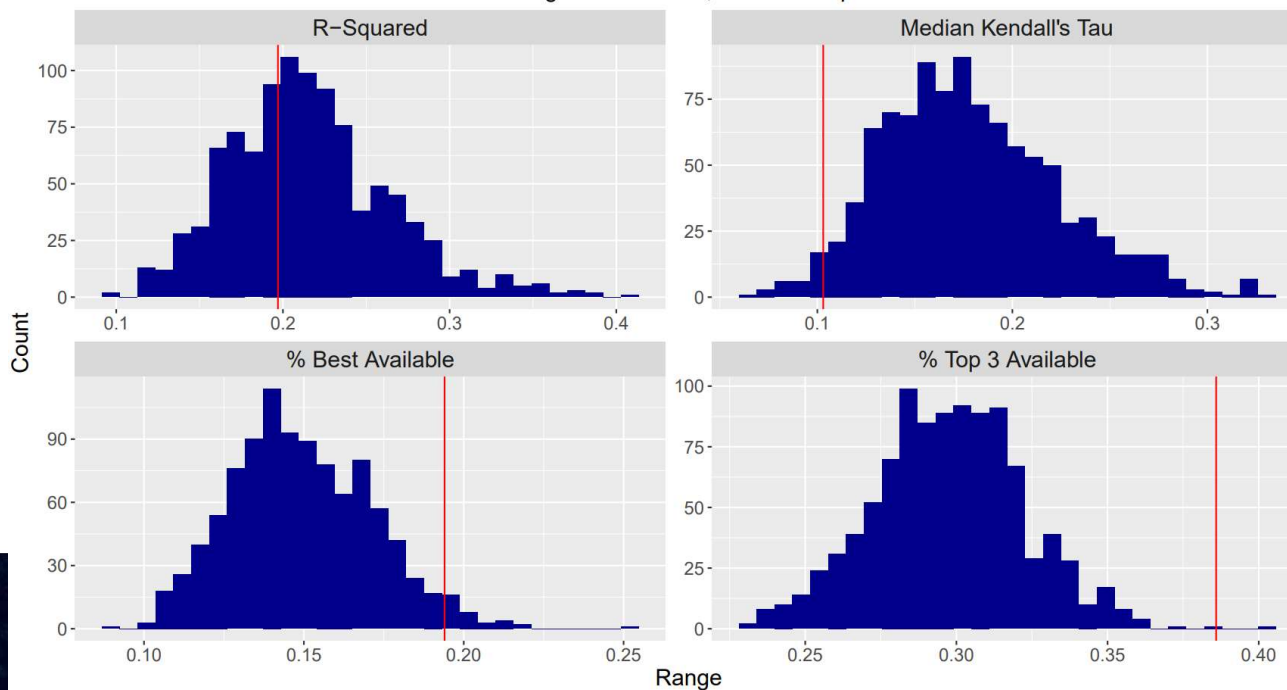| Position	% Top 3 Available	% Best Available	R-Squared	Median Kendall's Tau
QB	64.5	29.1	0.534	0.494
EDGE	54.9	22.8	0.456	0.436
TE	53.3	20.7	0.41	0.510
OT	48.0	18.5	0.460	0.487
DL	43.0	17.6	0.459	0.478
S	41.6	16.8	0.337	0.428
RB	35.7	19.4	0.404	0.509
WR	30.4	13.1	0.400	0.431
IOL	28.7	11.6	0.367	0.407
CB	27.8	11.6	0.391	0.454
LB	26.0	9.7	0.498	0.486

- Performed random resampling of 2012-21 NFL Drafts to determine how significant differences in correlations are
  - Each drafted player given a random Average Madden Rating based on buckets of size 5
    - E.g. Saquon Barkley (#2 pick) given random Average Madden Rating from pool of all Top 5 picks
  - QBs sampled independently by draft round

Histogram of Simulated Differences between Best and Worst Score by Position
2012−21 Drafts Simulated N = 1000 times using size 5 buckets; Red lines represent observed differences

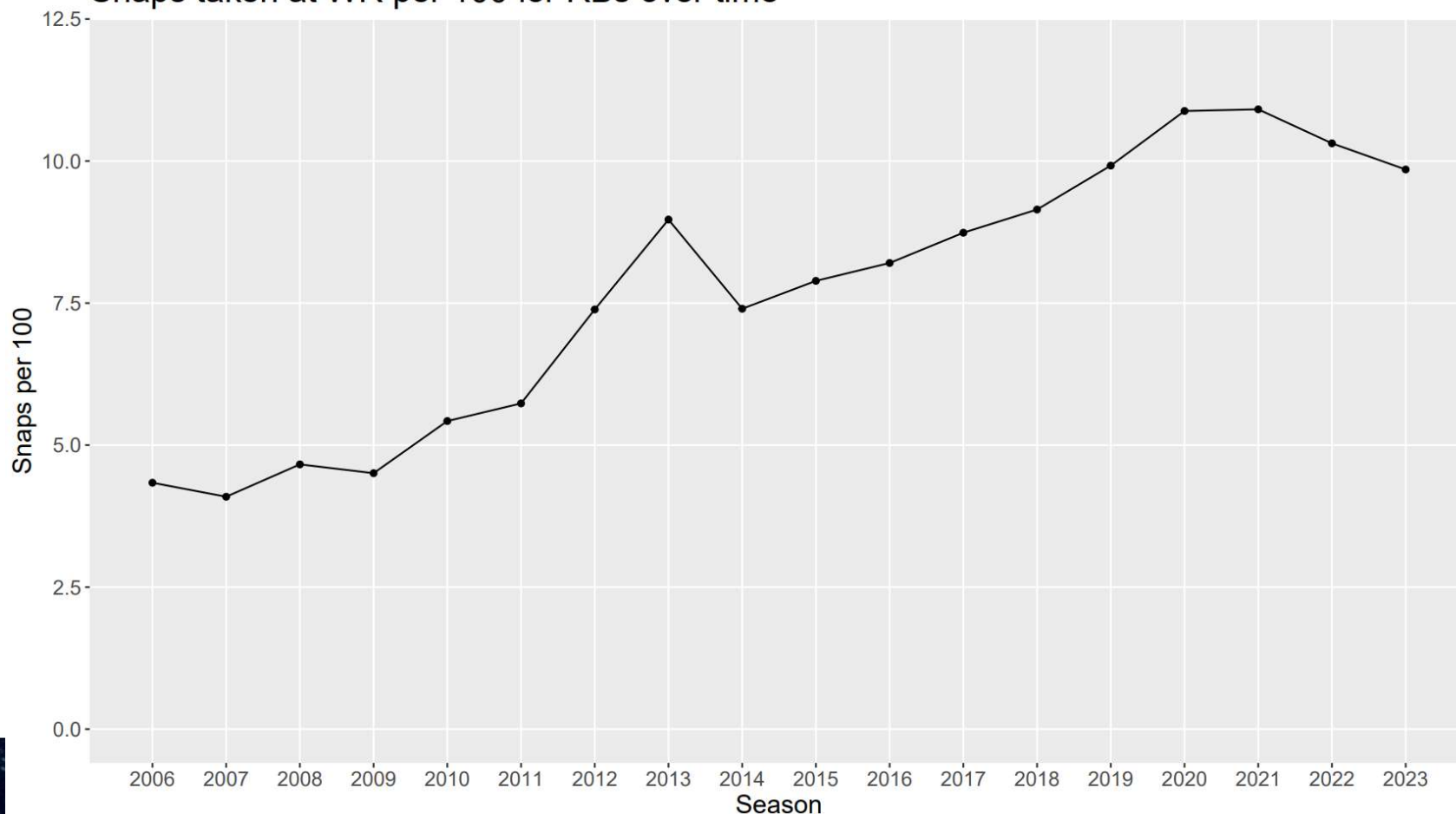Observed differences in R-Squared and Kendall's Tau **NOT** significant

Observed differences in % Top 3 Available and % Best Available significant

Snaps taken at WR per 100 for RBs over time

RBs line up at WR more often than they used to...

But aren't tested on WR routes at the Combine

RBs also not tested on Pass Blocking but play that role for ~10 Snaps per 100

- Player success defined using Madden Ratings

- Most effective correlation metric: % Top 3 Available
    - QB, EDGE, TE performed the best
    - OT, DL, S performed okay
    - RB, WR, IOL, CB, LB performed poorly

- Players often perform certain roles that they are not evaluated on at the Combine
    - RBs
        - Line up at WR ~10% of the time
        - Pass Block ~10% of the time, Run Block ~8% of the time
    - WRs – Run Block ~35% of the time
    - DBs – Line up at LB ~15% of the time

- Other results:
    - Teams trade-up very inefficiently on draft-day (especially for QBs and for 1st-round picks)
    - Notable differences in how efficiently different GMs draft
        - There is a skill to drafting