Outline

1. Motivating Question

It’s week x of the season and Christian McCaffrey flares out on a wheel route. He extends his arms outward and makes a beautiful catch. But something is wrong. Instead of popping up and jogging back to the huddle, he gingerly limps to the sideline. Christian has sprained his ankle. Fortunately, he recovers fully from his injury and returns to the field later in the season.

But while we are of course happy to see Christian recover, it’s important we remember the real victims in the story – the group who will never be made whole. They are the Christian McCaffrey fantasy football owners. About 40 million people play fantasy football in the United States each year. Supposing the average league has about 12 players, about 3.3 million people had McCaffrey on their fantasy teams. Upon contemplating the overall loss in utility even something as seemingly trivial as losing your first-round fantasy pick can cause when multiplied by 3.3 million, it becomes clear there is a moral imperative to ensure such scenarios are prevented.

Fortunately for us morally concerned citizens, there exists a proposed solution that goes by the name of the “Zero Running Back” draft strategy. Under this strategy, the fantasy owner abstains from drafting a running back in the first few rounds of the draft and tries to find fill their running back slots in the later rounds and from the waiver wire. The theory goes that since running backs frequently get injured, NFL teams have largely adopted running back by committee strategy, and good backs often emerge on the waiver wire throughout the season due to injuries to the starters, fantasy owners are better off using the first few rounds to load up on top tier talent at less injury-prone positions like receiver, tight end, and even quarterback.

The theory sounds somewhat convincing, but has it worked in practice? To see if it has, I created 100,000 hypothetical fantasy football rosters by simulating drafts. 50,000 of these rosters are from hypothetical owners drafting using a “conventional”[[1]](#footnote-1) strategy, while the other 50,000 are from hypothetical drafting using the “Zero Running Back”[[2]](#footnote-2) strategies. The simulated rosters are spread evenly throughout the past five NFL seasons (2017-2021).

**In light of my findings, I would recommend owners pursue the Zero Running back strategy when xyz.**

* 1. An anecdote about zero strategy in group chat
  2. What is the zero running back strategy
  3. Some links to seeing it discussed
  4. *The theory goes*

1. Quick Results
   1. *Despite the hype about the strategy, I had yet to see an empirical analysis of whether the strategy has actually outperformed the “conventional wisdom.” This motivated me to check. I simulated 110,000 drafts to obtain 10k rosters where teams pursued the “Zero Running Back” strategy and 10k rosters where teams pursued a conventional strategy for each of the past five years. I found “”*
   2. Bullet points key takeaways
   3. Charts
2. In-depth results and Interpretations
3. Methods

**Methods**

The following section will contain a high-level overview of how I obtain the simulated rosters. For those interested in the actual code, please see the following repository. I obtain the hypothetical rosters for each strategy by simulating **snake drafts** for leagues with **16-man rosters** and **ten teams. Each simulated draft**, therefore, **produced ten** **rosters of sixteen players. The rosters consist of:**

* **1 Quarterback**
* **2 Running Backs**
* **2 Wide Receivers**
* **1 Tight End**
* **1 Flex Player (Running Back, Wide Receiver, or Running Back)**
* **1 Kicker**
* **1 Defense/Special Teams**
* **7 bench players**

I simulate 50,000 drafts (10,000 drafts per year from 2017-to 2021) where all teams pursued a “standard strategy.” **These simulations produce 50,000 rosters, which represent all the data for the “standard strategy.”**

I simulate 500,000 drafts (100,0,00 drafts per year from 2017-to 2021), where one team in the draft pursues a “Zero RB” strategy draft. 50,000 drafts are simulated for each draft position pursuing the Zero RB strategy (e.g. 50,000 with the team with the 1st pick pursuing Zero RB, 50,000 with the team with the 2nd pick pursuing the Zero RB strategy, etc.) **From these 500,000 drafts, I obtain the 50,000 rosters from teams pursuing the Zero RB strategy, which represents all the data for the “Zero Running Back” strategy.**

**Simulating the Drafts:**

The standard strategy drafts were simulated using an algorithm that assumes:

* Teams are likely to pick the player with the highest remaining draft position or a player slightly below the player with the highest remaining draft position.
* The later in the draft a team is picking, the more likely they are to pick a player whose average draft position is a greater distance from the ranked available player by ADP
  + For example, a team drafting #1 overall is unlikely to pick a player more than 3-4 slots lower than #1 in ADP, but a team with pick 100 may reasonably select a player with an ADP 10-15 lower than the highest available.
* Teams aim to fill all starting positions on their rosters before filling bench slots, except for Kickers and DSTs. The algorithm also permits teams to select one WR, TE, or RB to a bench slot before selecting a QB.
* Teams must fill all starting positions on their rosters by the end of the draft.

The “Zero RB” draft is simulated the same way as the standard strategy draft with one difference; one team in the draft does not pick a running back in the first four rounds.

Any of us who have played fantasy football in real life know that player behavior cannot be reduced to these few simple rules. Owners will draft players based on irrelevant factors (funny names, being on the owner's favorite team, etc.) or sometimes pursue an unorthodox strategy. However, by introducing random variation in the simulations, having the owners follow reasonable rules, and simulating many drafts, we can get a set of rosters that should mirror those produced by real drafts.

**A note on scoring:**

1. [↑](#footnote-ref-1)
2. [↑](#footnote-ref-2)