

Risky Business Week 2 2020

Hidden gems

The opportunity to make an impactful decision often presents itself in non-obvious situations. While week 2 of the NFL season was defined by last second drama, three particularly fascinating decisions may have gone unnoticed to the casual viewer.

Chargers vs Chiefs:

Last season, we dissected a missed opportunity by Anthony Lynn and the Chargers when they chose to punt on a late 4th and 1 in their own territory against the Bears. Thanks to Bears' Eddy Pineiro missing a game-winning field goal, the Chargers were not punished for a very poor decision. (*insert Risky Business week 8*) This time, against the powerful Chiefs' offense they were not so fortunate. Facing a 4th and 1 in overtime on their own 34 yard line, the Chargers executed a deceptively successful punt to the Chiefs 5 yard line. A few minutes later, the Chiefs secured the victory with a field goal. By choosing to punt, the Chargers cost themselves approximately 7% GWC on average. Once again, this decision can be framed by comparing historical conversion rates to the required conversion rate. To further emphasize our case, we will use very conservative assumptions that should favor the punting decision. This includes the actual 61 yard punt with 45 net yards and no overage yardage on a first down conversion. Also, ties are treated as ½ wins in the analysis.

- Chargers punt and force the Chiefs to start drive from their 21 yard line GWC= 36.7%
- Chargers convert first down with exactly a one yard gain. GWC= 55.0%
- Chargers fail on 4th down and Chiefs take over on LAC 34 yard line GWC= 14.5%

Chargers risk $(36.7 - 14.5) = 22.2\%$ GWC to gain $(55.0 - 36.7) = 18.3\%$. Therefore the required conversion rate is $22.2 / (22.2 + 18.3) = 54.8\%$ which is well below the NFL average for 4th and 1 conversions (~70%).

Eagles vs Rams:

Trailing 24-16 with 12:07 remaining in the game the Eagles successfully kicked a field goal with a 4th and 8 on the Rams' 15 yard line. There was an offside penalty and now the Eagles had an intriguing option to take the points off the board with a 4th and 3 at the Rams' 10 yard line. The model indicates this choice costs the Eagles 1.9% GWC on average but to further break it down we need to look at some relevant game states and corresponding GWCs for the Eagles. Once again, we will make the very conservative assumption the Eagles only pick up 3 yards on a successful conversion.

- 1st and goal from the Rams' 7 yard line (after conversion) GWC = 39%
- Rams take over on their own 10 yard line (after Eagles fail) GWC = 17.9%

- Eagles kick off trailing 24-19 (keep points on board) GWC = 24.9%
- Eagles risk $(24.9 - 17.9) = 7\%$ GWC by accepting penalty and failing.
- Eagles gain $(39.0 - 17.9) = 21.1\%$ GWC by accepting penalty and converting.

Required (conservative) conversion is only $7/(7+21.1) = 24.9\%$. Even if the Eagles knew they would only gain exactly 3 yards on a successful 1st down attempt, they would only need to convert $\frac{1}{4}$ of the time. Based on empirical data, an average NFL team should convert a midfield 4th and 3 about 50% of the time. While the red zone is obviously a different situation, a required 25% conversion rate appears compelling enough to accept the penalty and go for it.

Jaguars vs Titans:

We suspect that no one gave a second thought to the Jaguars punting on 4th and 8 from their own 25 yard line with a tie score and 3:35 remaining in the game, but there is more here than meets the eye. This is a highly leveraged situation that could either result in the Jaguars offense never seeing the ball again or having to orchestrate a game winning drive with limited clock. Additionally, a failed 1st down attempt does not necessarily seal their fate. Surprisingly, we assessed this counterintuitive choice to go for it as producing 8% more wins for the Jaguars on average. Let's look at the numbers from the Jaguars perspective.

- Jaguars punt and Titans take over on their 40 yard line (actual result) GWC = 28.3%
- Jaguars go for it and pick up exactly 8 yards for 1st and 10 at 33 yard line GWC= 55.7%
- Jaguars fail and Titans take over at Jags 25 yard line GWC= 23.3%

Jaguars are risking only 5% GWC to gain 27.4% GWC for a required conversion rate of $5/(5 + 27.4) = 15.4\%$. Empirical data indicates an average NFL can pick convert this 4th and 8 about $\frac{1}{3}$ of the time making this a clear go!