

## Risky Business Week 10

### The Year of the Fourth Down Revolution?

The uptick of fourth down aggressiveness by NFL coaches is creating quite a buzz. At EdjSports, we have been receiving a flurry of requests to verify that this is a real and meaningful trend. As someone who has been passionate about the cost of poor fourth down decisions for almost two decades, I can say with confidence there appears to be a clear shift in strategy. According to our model, the rate of correct fourth down decisions has increased approximately 5% year over year and aggregate error cost this year is projected to drop from about .66 games to .59 games per team on average (adjusted to 16 games for fair comparison). But just in case you were thinking NFL coaches have reached some kind of analytical enlightenment, there is still a very long way to go.

If a veteran coach like Sean Payton still doesn't understand that kicking a field goal on fourth and goal from the 1-yard line is a massive blunder when trailing by 11 points late in the game, we should mark the "fourth down revolution" with a bold asterisk. Payton fell for the classic fallacy of the two-score-game. The logic follows that you need two scores anyhow when trailing by 11, so choose to execute the high percentage field goal first because you can always pick up that pesky touchdown and two-point conversion later. And if the Titans don't score again, then you simply win in overtime. If the strategy behind this misguided parlay seems crazy, that's because it is. A custom simulation has the field goal attempt dropping the Saints' GWC from 12.8% to 5.3%. This costs 7.5% GWC in absolute terms and squanders more than ½ of the Saints' available equity.

The math is clear on this type of decision and surely most coaches, including Payton, must know it. Why then do these types of blunders persist? I have strong suspicions it is driven by a number of well-known cognitive biases.

- **Recency Bias:** The Saints started with a first and goal at the 4-yard line and couldn't get the ball into the endzone on the first three attempts. Rather than looking at the fourth and goal from the 1-yard line as an independent decision, the prior failures are clouding proper judgement.
- **Risk Aversion:** Closely related to the Recency Bias, failure to convert on four consecutive tries is too much to bear. The coach feels they must get something out of the drive.
- **Overconfidence Bias:** Payton may see a two-score path to victory, but he is grossly underestimating the improbability. The Saints must: 1. successfully kick the field goal; 2. Get the ball back; 3. Score a touchdown; 4. Get a two-point-conversion; 5. Not allow a final drive by the Titans in regulation; 6. Win in overtime. Their chances to win are also improbable after going for it on fourth down, but it is a matter of degree.
- **Postponement of Regret:** By kicking the field goal, the Saints cost themselves GWC, but they give themselves the highest probability of feeling they are still in the game for the next several minutes. As strange as this sounds, it is a very common bias.

To further confirm just how bad of a decision this was by Sean Payton, we can substitute any two NFL teams into this specific simulation. At the most extreme ends of the spectrum, it would still be a clear blunder if it was the lowly Texans' offense vs the Bills.

Most of the post-game discussion has focused on the injustice of the terrible roughing the passer penalty in the second quarter that cost the Saints an endzone interception. Indeed, this was very costly, as it reduced the Saints' GWC by nearly 20%. However, the Saints had no control over that decision. The same cannot be said about the goal line fourth-and 1.

- **4th & Goal at TEN 1**  
(5:33 - 4th) Brian Johnson 20 Yd Field Goal

12.8% GO

5.3% FG