

Risky Business Week 13

The Ravens' Fascinating Choice – No Not That One.

The most talked about play of the weekend occurred at the end of a tight match-up between the Ravens and Steelers. Trailing by one point, John Harbaugh decided to put it all on the line and attempt a two-point conversion for the win. This was certainly an unconventional approach that was sure to elicit criticism if it failed, and it did.

Before we get into the criteria around the PAT strategy, it is worth examining several impactful moments that preceded the Ravens' final touchdown drive. With 2:45 remaining in the game, the Steelers were trailing 13-12 with a first-and-10 at the Ravens 21-yard line. The Ravens still had all three timeouts but made the questionable decision not to call their first one after an 8-yard gain by Benny Snell Jr. The Steelers happily responded by allowing the clock to run all the way down to the two-minute warning. The Ravens effectively traded 40 seconds of game clock for one time out which resulted in a -5.2% reduction in GWC. It is nice to retain timeouts for a potential game-winning drive but there was a clear and present value to be extracted by stopping the clock at 2:40.

Coming out of the two-minute-warning, the Steelers were about to snap the ball with second-and-2 at the 13-yard line when Ravens' safety Chuck Clark charged across the line for an obvious, and somewhat suspicious, offside penalty. Assuming this was intentional, and we have strong reason to believe that it was, this was a fascinating and brilliant decision by the Ravens. Our analysis reveals that by proactively altering the game state from second-and-2 on the 13-yard line to first-and-goal on the 8-yard line, the Ravens gained 5.0% in GWC. Removing the first down potential served to reduce the amount of time the Steelers could burn before scoring. The Ravens would be indifferent on an immediate touchdown but would protect significant seconds if they could hold the Steelers to a field goal by using all of their remaining timeouts.

In spite of this clever strategy by the Ravens, the Steelers managed to score a touchdown along with a two-point conversion to take a 7-point lead. On the ensuing kick-off, the ball took a clever bounce that nearly pinned the Ravens inside their 5-yard line but eventually found its way out of bounds. The resulting penalty allowed the Ravens to begin their final drive on the 40-yard line rather than the 25-yard line which boosted their GWC by 4.2%. With the benefit of the advanced field position, Lamar Jackson managed to lead the Ravens down field for a touchdown with just 12 seconds left in the game. This is when Harbaugh surprised everyone by going for the win with a two-point attempt. Let's look at the major considerations that might have factored into this decision.

- A successful two-point conversion effectively ends the game
 - The NFL average conversion rate since 2000 is 48%
 - Since 2018 there has been an uptick in success rate to 50.1% although lacking in enough data to draw conclusions on statistical significance.

- The Ravens were a pre-game favorite on the road and according to a custom simulation would be slightly favored in OT by a slim 52% margin.
- Harbaugh was concerned about the absence of Marlon Humphrey at cornerback and how this might affect their pass defense in overtime.
- Justin Tucker's kicking prowess could be an asset in overtime. He also provided the Ravens with a non-zero probability of winning the game after a failed two-point conversion with 12 seconds for an on-side kick recovery and long field goal attempt.

Everyone is looking for a definitive answer to whether the Ravens' made a mistake and it comes down to a simple comparison of their overtime GWC vs. their two-point conversion success rate. The EdjSports' model leans toward kicking the PAT and attempting to win in overtime but it is very dependent on the underlying assumptions. If we simply look at NFL historical averages for two-point success rates and assume the game would be close to pick-em in overtime it is a very close decision but still leans toward kicking the PAT. It was an exciting decision for sure, but it was far from the being the most innovative. That happened at the two-minute mark.