

## Corruption or Conservative Strategy? An Examination of College Football Behavior

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In 2009, Boise State was a 45 point favorite to beat New Mexico State. In the fourth quarter, Boise State was leading 42–0 before fumbling twice in subsequent possessions and eventually would not cover the 45 point spread. Assuming fumbles are uniformly distributed over the course of a season the probability of the 2009 Boise State team fumbling twice in back-to-back possessions is only 0.41 %. Is this evidence of “point shaving”?

Point shaving is a deliberate choice by players to reduce effort in order to score fewer points while still winning the game. If the team scores fewer points than expected by the Vegas line then gamblers who bet against the shirking team will win a payoff. Players taking bribes may be willing to shave points so long as their team is unlikely to lose the game.

Duggan and Levitt (*American Economic Review*, 2002), Wolfers (*American Economic Review*, 2006) and Diemer (*Journal of Prediction Markets*, 2009) find corruption in sumo wrestling, college basketball and the National Football League (NFL) respectively. Another type of corruption discussed in Taylor and Johnson (*Journal of the Philosophy of Sport*, 2014) is “running up the score.” When teams are running up the score they deliberately try to score more points even though they have a large lead and are unlikely to lose the game. In 2009 Texas Christian University (TCU) kept its starting offense in the game during the fourth quarter while leading Utah 41–21, eventually winning the game 55–28 amid its bid for a prestigious (and lucrative) Bowl Championship Series bid. After the game TCU coach Gary Peterson said “if the nation didn’t think that this was enough style points, then I don’t know what is.”

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In this study, we examine a rich drive-by-drive data set of college football games from 2008 to 2011. With approximately 40,000 drives we examine in-game outcomes to search for evidence of widespread running up the score or point shaving. In 54 separate tests we find zero statistical evidence at a 90 % confidence interval for either point shaving or running up the score. These tests are composed of three drive characteristic variables (yards per play, yards per minute of possession and plays per minute of possession) as estimated by three seemingly unrelated regression formations and six drive outcome variables (touchdown, field goal attempt, failed fourth down conversion, interception, fumble and end-of-half all relative to punting) with probabilities estimated in three multinomial logit regression formations. The formations include a baseline which examines fourth quarter drive performance (9 tests), a formation which segments the fourth quarter into five minute subdivisions ( $9 \times 3$  tests) and a formation that divides Top-25 teams from unranked teams with regard to fourth quarter performance ( $9 \times 2$  tests).

When the team on offense leads by 14 points or more in the fourth quarter, regardless of whether or not the team on offense is within one score of the Vegas line, we find significantly fewer yards per play, fewer yards per minute of possession, fewer plays per minute of possession and a significantly higher probability of punting relative to scoring a touchdown, attempting a field goal, throwing an interception or failing a fourth down conversion. Taken together these results imply that teams typically play slower and implement more conservative strategies when leading by more than 14 points in the fourth quarter; there is no evidence of deliberate shirking. The coefficients of the drive characteristic variables and drive outcome probabilities are not statistically different whether the offense in question is comfortably covering the Vegas spread by more than 14 points (and clearly beating expectations) or is within one touchdown of covering the spread (near the pre-game expectation).

Chang and Sanders (*Review of Law and Economics*, 2009) would imply that unranked teams (not a top 25 team) would be more likely to engage in point shaving as underperforming the Vegas line is less costly. Likewise, teams ranked in the top 25 may have more impetus to run up the score in order to achieve better ranking, prestige and payout from a bowl game. Our results suggest no statistically significant difference with regard to drive characteristics or outcomes between ranked and unranked teams in the fourth quarter when the team on offense has a large lead.

Given that there are more players on the field at any time compared to basketball (and especially compared to sumo wrestling) it is probably very difficult to engage in point shaving in football. Finally, our results suggest that what could be considered point shaving is merely consistently conservative strategy for teams with large leads. Future research on corruption in sports should take into account the risk profile of in-game performance to better discern the difference between a conservative in-game strategy and genuine corruption.