Tackling Time Zones: Predicting International NFL Outcomes Amid Time Zone Changes

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INTRODUCTION

- In sports, an upset occurs when the favored team loses against the underdog team, which can present significant implications for fans, teams, and the gambling industry

- Over the years, the National Football League (NFL) has expanded its reach beyond domestic borders, organizing 43 games in international locations since 2007

- Underdog teams have historically struggled when they play in foreign countries, with a record of 10-30 record in international games. Recent trends show that underdogs have a 6-14 record in such matchups over the past five years

- Looking ahead, the 2025 season promises an even more ambitious slate of eight international games, including the historic debut of American football in Madrid

- This study aims to explore the complex relationship between time zones, travel fatigue, and team performance, seeking to unravel the mystery of international NFL upsets

Table 1:

Descriptive Statistics

	N	Minimum	Minimum	Maximum	Mean
UnderdogBeforeGameWins	40	6	0	6	2.87
UnderdogBeforeGameLosses	40	6	1	7	3.25
DiffTimeZone	40	9	0	9	5.3
Upset	40	1	0	1	0.3

METHODOLOGY

- Data on NFL international games from the past six seasons was collected using web scraping techniques. Relevant information, including game outcomes, team statistics, and venue details, was extracted from reputable sports websites or databases. The scraped data was then organized into an Excel spreadsheet which was then converted into a .sav file for compatibility with statistical software

- A logistic regression model was built to analyze the relationship between various factors and the likelihood of an upset in international NFL games

- Backward elimination was used as a method for refining the regression model, systematically removing non-significant variables to enhance model accuracy and interpretability

RESULTS

Table 2.

Final Predictive Model

Variable	Coefficient	Significance	Odds Ratio
UnderdogBeforeGameWins	-.623	.089	.536
UnderdogBeforeGameLosses	-.485	.044*	.616
DiffTimeZone	.310	.301	1.363
(Constant)	.457	.795	1.579
Overall Significance		.047	
Hosmer & Lemeshow		.101	

*Significant at the .05 level

LIMITATIONS

- One significant limitation of our study is the very small sample size, which may have resulted in limited statistical significance of our findings.

- Additionally, the presence of alternate factors, such as the individual effects of time-zone changes, could have influenced the outcomes of NFL international games.

- Furthermore, it's important to note that certain NFL teams may not necessarily have to change time zones when participating in the NFL International Series; for instance, teams like the Dallas Cowboys may already be in the same time zone as the international venue.

Table 3.

Variance Explained

Cox & Snell R-Square	.180
Nagelkerke R-Square	.255

Table 4.

Classification Table

	0 (No Upset)	1 (Upset)	Percentage Correct
0 (No Upset)	24	4	85.7
1 (Upset)	9	3	25.0
Overall Percentage			67.5

IMPLICATIONS

- Understanding and predicting upsets in NFL international games holds considerable importance for various stakeholders. Insights gained from such predictions could provide valuable guidance for NFL coaches, players, and general managers when facing the challenges of international travel and time-zone adjustments.

- This research could also inform discussions about potential international team expansion within the NFL, enhancing fan engagement and interest in the sport

- Additionally, the ability to predict upsets has implications for sports betting and fantasy sport enthusiasts, who rely on accurate forecasts for their predictions and strategies

FUTURE RESEARCH

- To address the limitations and further enhance our study we can expand the dataset by continuing to collect data on past and future international NFL games

- Additionally, investigating upsets across various sports and exploring other significant explanatory variables beyond those considered in our current study could offer valuable insights into the broader dynamics of international sports competitions