Research Article

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Home Sweet Home Field Advantage:

Examination at Sport, League, and Club Levels

Abstract: From 2001 to 2017 seasonal data

1 Introduction

Aiming to uncover deeper insights into the games of professional football, the National Football League (NFL) recently announced that it will be powering its Next Gen Stats with Amazon's Cloud Computing Platform - AWS to kick off the 2018 season. Amazon's cloud computing arm also powers Statcast, the next generation statistics platform for Major League Baseball (MLB). These high-profile tech-sport partnerships are arguably the latest and most visible account of invasion of analytics into the realms of spectator sports.

Accompanying the wide-spreading notoriety in the general populace is the ever-increasing availability and volume of data associated with games, players, teams, and sports.
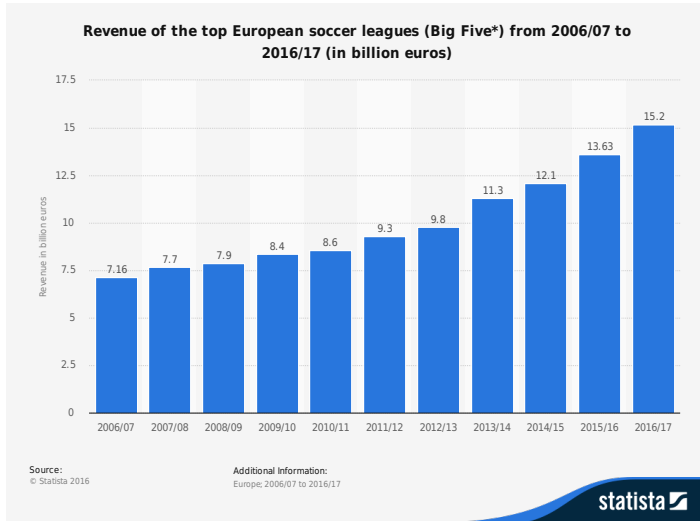
(Gajewski, 2006)

A second motivator for this study is related to the hotly debated topic of home field advantage (HFA) in soccer competition. The contributions we made in this paper are (1) highlighting the different generative process underlying most sports performance metrics and suggesting corresponding solutions. (2) investigating the long and firmly held belief of HFA simultaneously at sport, league, team levels. (3) using season performance data to rule out incidental game specifics.

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Fig. 1: *Revenue of the top European soccer leagues (Big Five*) from 2006/07 to 2016/17 (in billion euros)*

2 Review of Literature

Tab. 1: Descriptive Statistics

	Mean	Median	Std. Dev.	Min.	Max.	Skewness	Kurtosis
MHG	3.634	4	1.676	0	9	0.246	0.034
MAG	2.884	3	1.676	0	10	0.627	0.786

2.1 Data and Analyses

2.2 Sources

2.3 Results

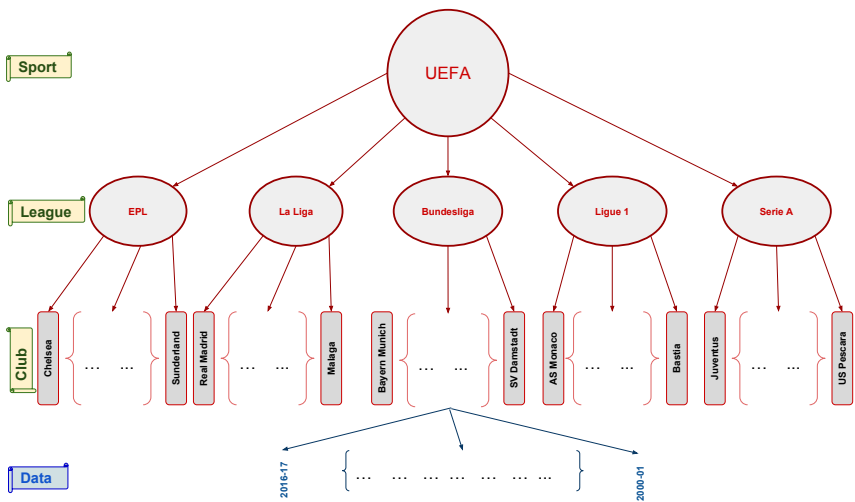**Fig. 2:** The Hierarchical Model of Home Field Advantage

Fig. 3: Home Field Advantage Posterior Plot at Sport and League Levels
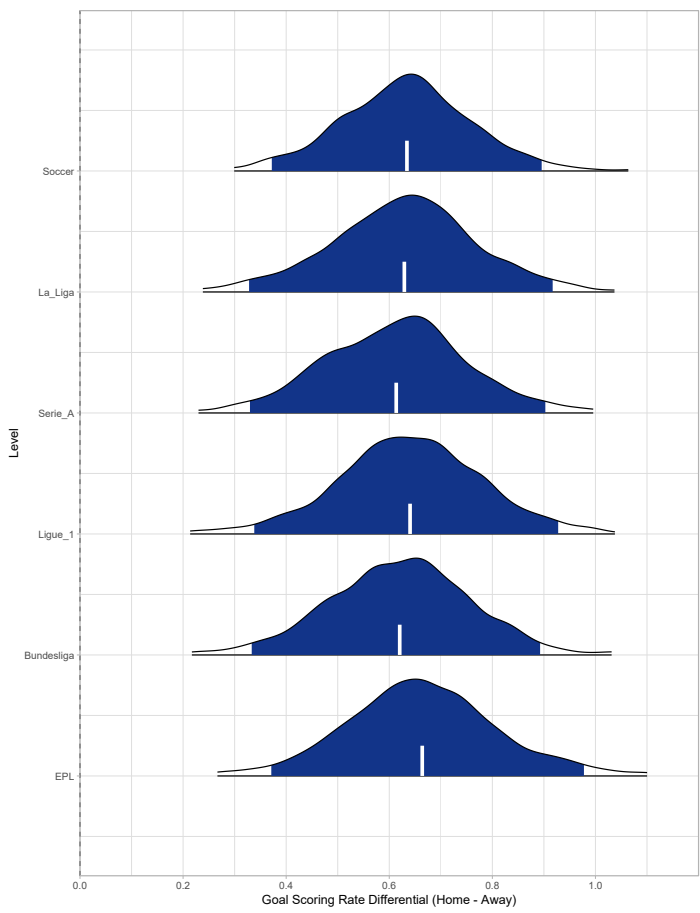
Fig. 4: Home Field Advantage Posterior Plot for La Liga Teams
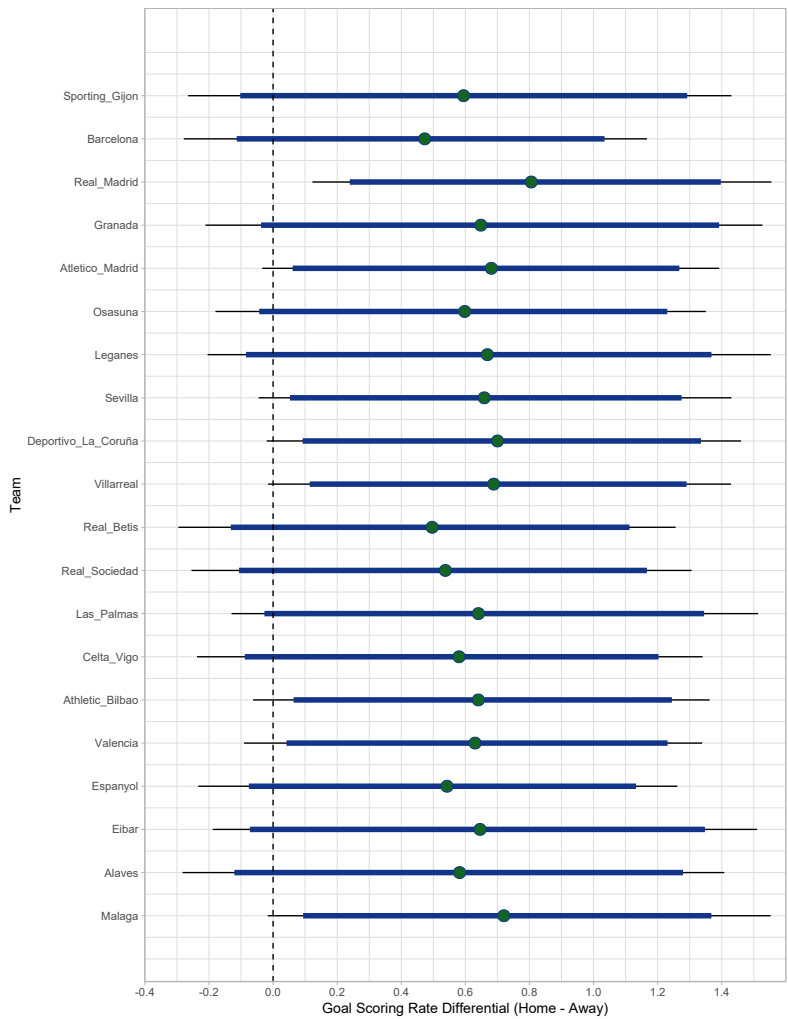
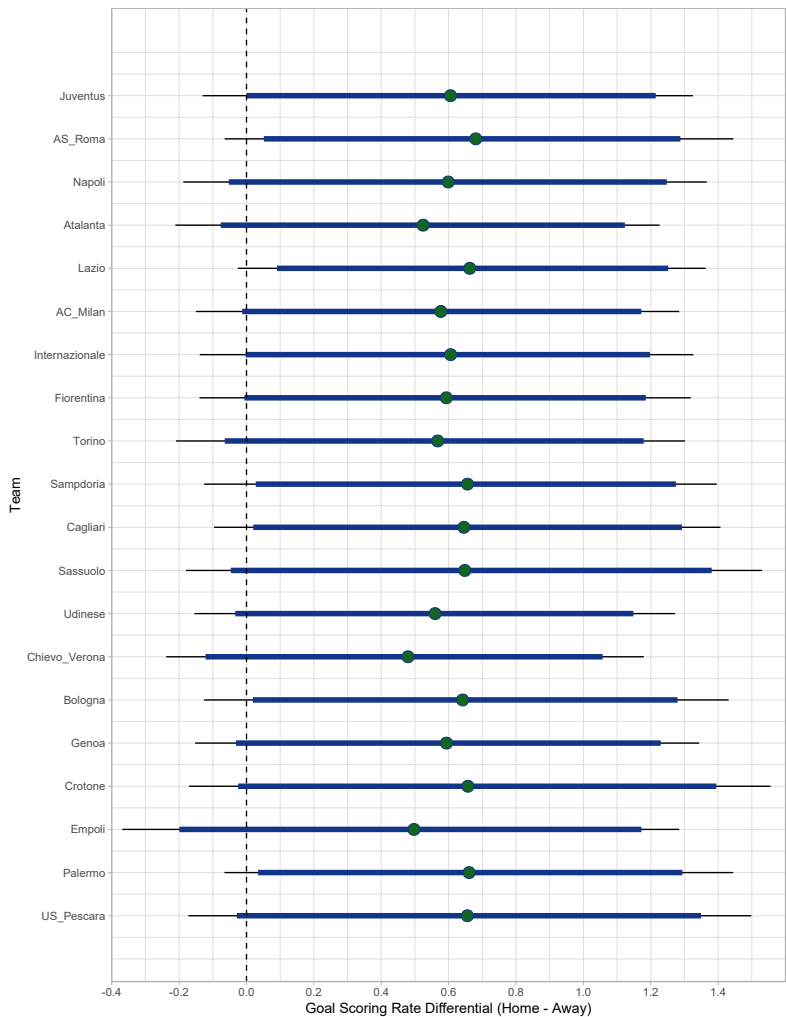**Fig. 5:** Home Field Advantage Posterior Plot for Serie A Teams

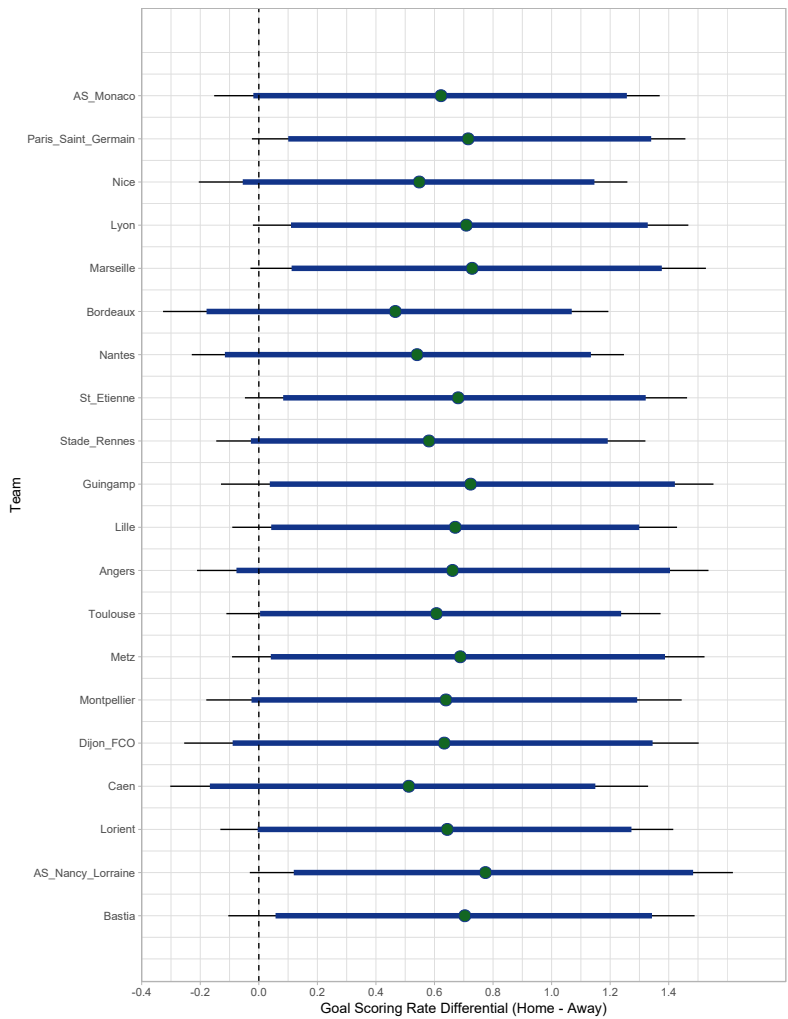**Fig. 6:** Home Field Advantage Posterior Plot for Ligue 1 Teams

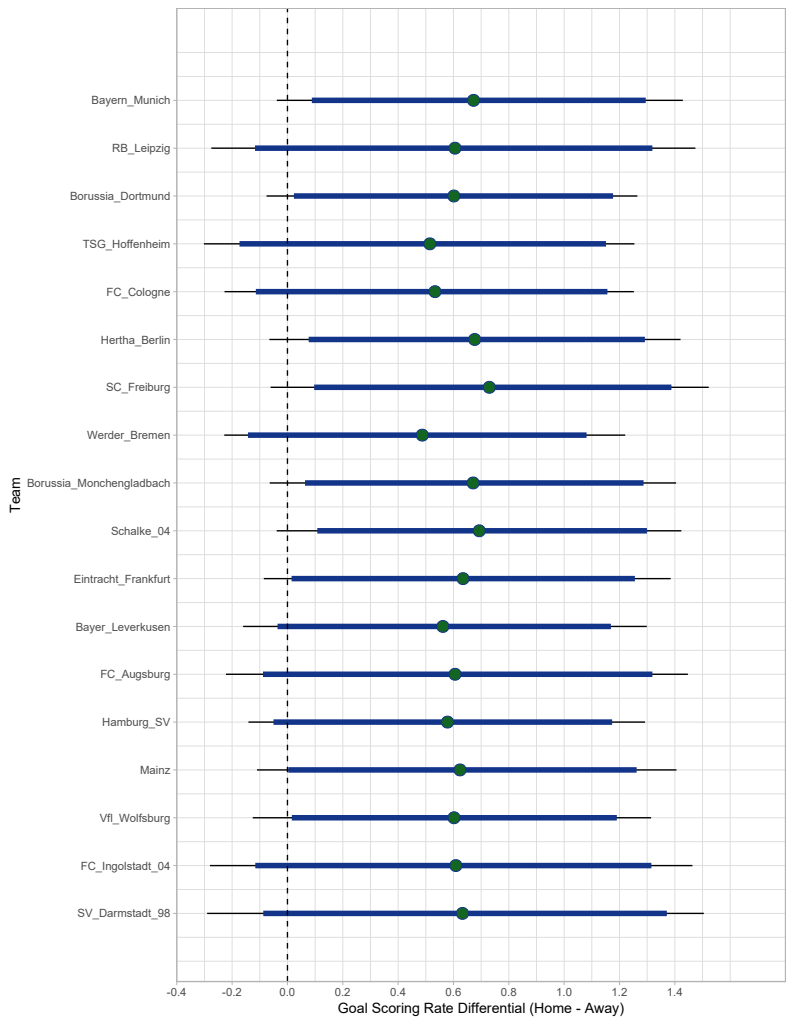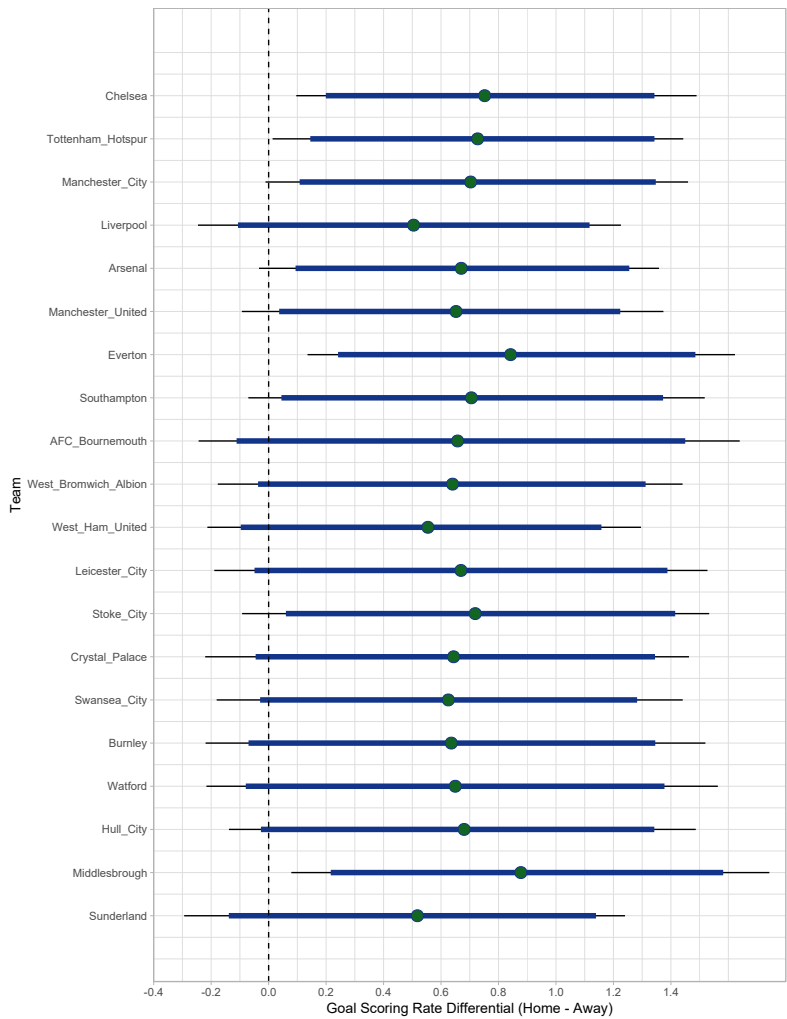**Fig. 7:** Home Field Advantage Posterior Plot for Bundesliga Teams

Fig. 8: Home Field Advantage Posterior Plot for English Premier League Teams

References

Gajewski, B. J. (2006). There's no place like home: Estimating intra-conference home field advantage in college football using a bayesian piecewise linear model. *Journal of Quantitative Analysis in Sports*, 2(1).