

The Fans' Impact on the Whistle

How do the boos and jeers of shouting fans manipulate the referees' calls during a game?

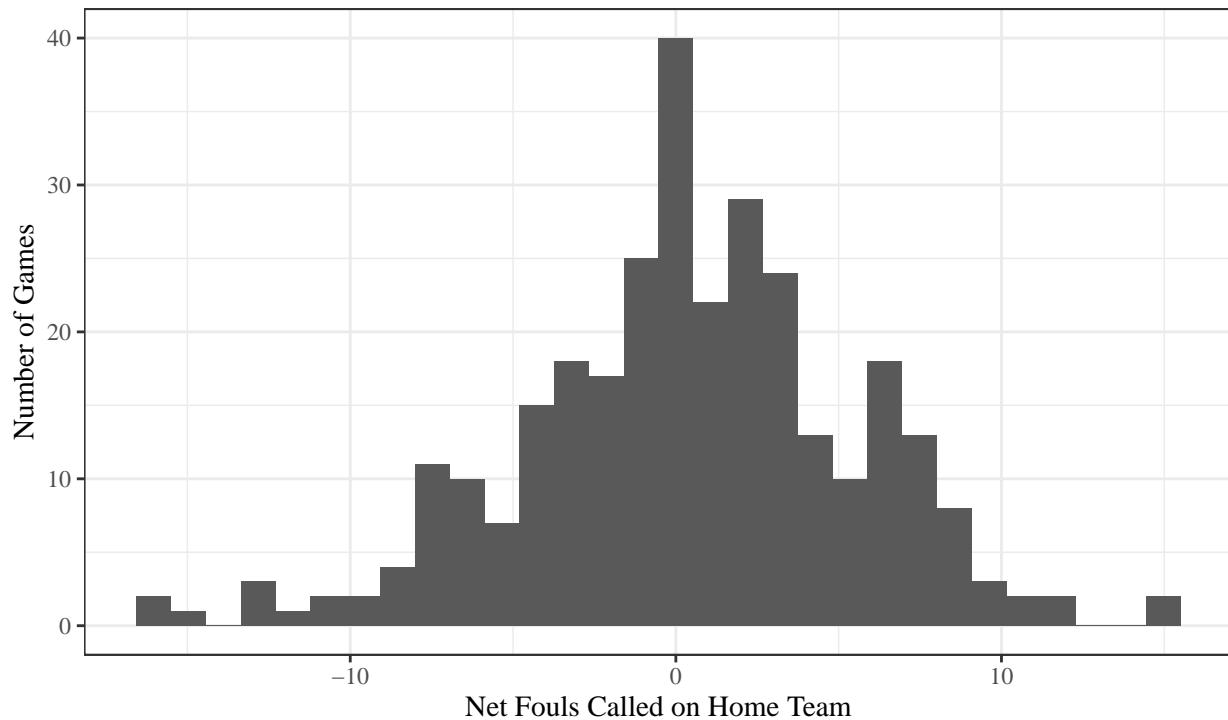
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In nearly every sporting event, whether at an eight-year-old's soccer game or the Super Bowl, fans can be heard screaming at the officials. Even when they make the right call, sports fanatics cannot help themselves from berating referees from doing their jobs. In soccer, fans take it to another level. One missed or wrong penalty call can cost teams three points. In numerous matches, fans outrage causes officials to actually fear for the lives: during one European game, fans beat a Dutch volunteer referee to **death**. Despite the anxiety and because of the rarity of scoring in soccer, officials instruct referees to only make calls when they are **100 percent** certain of the call. Of course, this means that they hold their whistles for many potential foul calls, which leads to even more shouting from the fans. The more and more missed calls, at least in the minds of the home-team supporters, leads to an onward cycle of shouting and hollering. Prior research on European Soccer looked at the rate of yellow cards for home teams versus away teams, **finding that referees indeed give more bookings to away players than home players**. Speaking more broadly, however, what is the impact of a fan's yelling on the referee in making decisions on any kind of foul? Is a referee more likely to hold their lips shut for the home-side, or give the home-team the benefit of the doubt? And when a referee does call a foul against the home-team, what impact do the disgruntled fans have on the next call?

Using event data from *InStat* from MLS games in the 2018 season, which tracks every single play and its location on the field during each game, I look at the dispersion of fouls rewarded to the home team versus the away teams, including the likelihood of the referee awarding a foul to the home team following a prior foul on the home side. Over the course of the season, the home teams had a net of 111, meaning that referees called 111 more fouls on the away team than on the home team. This number initially implies some sort of bias in favor of the home teams. However, in total, referees blew their whistles for foul decisions 7215 times, of which 50.8 percent were rewarded to the home team and 49.2 percent given to the away side. Thus, when looking at overall proportions, referees are surprisingly even in making their calls, despite the potential influence of impassioned fans. Looking at individual games, referees called an average of a measly 0.4 more fouls on the away team than the home side, again underlining an even officiating job in the majority of games. A positive net total reveals that referees called more fouls on the away team than on the home team, while a negative net value suggests the referees blew their whistles on the home team more than the away side.

Net Fouls for the Home Side During a game

Fouls called on the away team minus whistles blown on the home team



Source: InStat

Within each game, after the referee called a foul on the home team, he or she seemed to not feel much pressure to make up for the call, as there was a 51.7 percent likelihood that the next call would be on the away team, suggesting the referees do not implicitly make up for the foul call on the home team. Moreover, fans' jeers and screaming during an MLS soccer game seem to have little effect on the next decision of the referees – that is, referees do not have an inclination to make “reverse calls” in favor of the home team. The table below gives a team-by-team breakdown of the likelihood that, following a foul called on the home team, the ensuing foul is also on the home team versus the away team, and the net fouls given to the home team over the course of the season.

The 2018 MLS Champions, Atlanta United, received a slightly positive net-rewarded fouls at home total, and, once the referee called a foul on them, they had only a 44.4 percent likelihood of having a second successive foul called on them as the home team, meaning a slightly stronger likelihood of the referee making a reverse call. The New England Revolution were the most unfortunate team regarding home-foul calls, with a total of -66 net fouls rewarded to them at home and a 58.3 percent chance of having the referee make a consecutive foul call against them – neglecting the pleas from the stands. Meanwhile, DC United had the lowest percentage of consecutive fouls called on them as the home team: after the referee called a foul on DC United when they were the home team, only 34.8 percent of the next fouls were also called on them,

Table 1: Do home teams receive the benefit of the next call?

Team	Next Foul on Home Side (After Foul on Home Side)	Next Foul on Away Side (After Foul on Home Side)	Net Fouls Rewarded at Home
NE Revolution	58.3%	41.7%	-66
Colorado Rapids	57.7%	42.3%	-42
Chicago Fire	56.4%	43.6%	-46
New York City FC	55.3%	44.7%	-51
Vancouver Whitecaps	53.1%	46.9%	-21
Houston Dynamo	52.6%	47.4%	-35
Montreal Impact	51.8%	48.2%	-4
Minnesota United	50.6%	49.4%	-32
Philadelphia Union	50.4%	49.6%	-7
LA Galaxy	50%	50%	-7
San Jose Earthquakes	50%	50%	8
Dallas	47.5%	52.5%	14
Columbus Crew	47.2%	52.8%	-12
Real Salt Lake	46.6%	53.4%	7
Seattle Sounders	46.6%	53.4%	16
New York Red Bulls	46.5%	53.5%	12
Toronto FC	45.2%	54.8%	30
Atlanta United FC	44.4%	55.6%	11
Orlando City SC	43.6%	56.4%	11
Sporting KC	42.9%	57.1%	14
Portland Timbers	41.8%	58.2%	26
LAFC	36.9%	63.1%	68
DC United	34.8%	65.2%	38

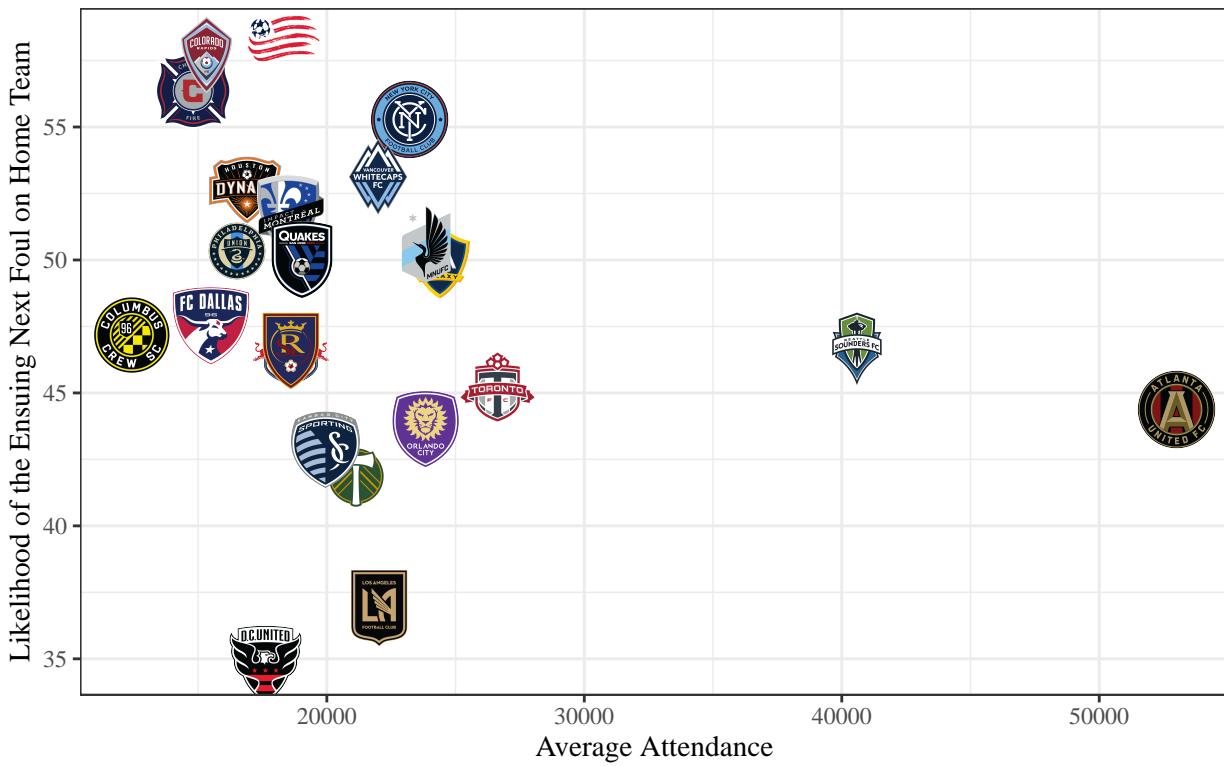
Note:

Source: Instat

suggesting the referees for DC United felt more inclined to reward them with the next foul.

Interestingly, despite DC United recording the seventh lowest average attendance in the league, they still had the highest likelihood of receiving the benefit of a foul call to make up for a call on them as the home team. This could mean that, surprisingly, having less fans might actually make the referees slightly favor the home-team, or reversely, that more fans create an atmosphere where the referee penalizes a home team consecutively to a greater extent than in stadiums with fewer people. Contrastingly, however, the Seattle Sounders, with the second highest average attendance in the MLS, had a probability of just 46.6 percent of having a foul called on them a second time after the initial foul. Similarly, Atlanta United, also drawing large crowds and having the highest average attendance in the league, recorded the sixth lowest probability of having a consecutive foul called on their players. Thus, there appears a high variation in likelihoods of earning a reverse call depending on average crowd size, meaning little to no correlation between average attendance and the probability of a reversal, as shown below:

Does the amount of fans influence the likelihood of the next call?



Source: InStat

In spite of the turbulent and sometimes excessive wrath of fans, MLS referees worked an impartial job in the 2018 season. No matter the number of people in the stadiums, overall, referees tend to not call fouls in favor of either the home team or the away team, as the probability of the next call being called on the away team after a foul on the home side versus the referee calling a successive foul on the home side is about equal. Furthermore, MLS soccer referees are successful at tuning out the noise in their heads and focusing on the rulebook; officials resist from feeling the need to please the crowd by indulging in a reverse call. This implies that fans can continue to shout and scream all they want to appease their frustration, but should realize that they have a small effect, negative or positive, on the direction of the referee's whistle.